FIFTH FIVE-YEAR REVIEW REPORT FOR
SOL LYNN/INDUSTRIAL TRANSFORMERS SUPERFUND SITE
HARRIS COUNTY, TX

SEPTEMBER 2020

Prepared by

U.S. Environmental Protection Agency
Region 6
Dallas, Texas

FIFTH FIVE-YEAR REVIEW REPORT
SOL LYNN/INDUSTRIAL TRANSFORMERS SUPERFUND SITE
EPA ID#: TXD980873327
HARRIS COUNTY, TX

This memorandum documents the U.S. Environmental Protection Agency's performance, determinations and approval of the Sol Lynn/Industrial Transformers Superfund site (Site) fifth five-year review under Section 121 (c) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S. Code Section 9621 (c), as provided in the attached fifth Five-Year Review Report.

Summary of the Fifth Five-Year Review Report

This Five-Year Review summarizes the current status of the remedy at the 0.75-acre Sol Lynn/Industrial Transformers Superfund site. The Site is located approximately six miles southeast of downtown Houston, Texas, in a mixed-use area that includes residential, commercial and light industrial areas. An electrical transformer salvage and recycling company operated on site from 1965 to 1975. A chemical recycling and supply company operated at the site from 1979 to 1980. Site activities contaminated soil and groundwater with hazardous chemicals. The remedy for operable unit (OU) 1 addressed contaminated soil. A Record of Decision (ROD) for OU1 was issued on March 25, 1988, and consisted of excavation of polychlorinated biphenyl (PCB) contaminated soils and treatment with a chemical dechlorination process. The ROD for OU1 was amended on September 16, 1992, and consisted of excavation and off-site disposal. The OU1 remedy was completed in April 1993. The remedy for OU2 consists of long-term response actions to address contaminated groundwater; groundwater contaminants include trichloroethylene and TCE degradation products cis-1,2-dichloroethene (cis-1,2-DCE) and vinyl chloride. The ROD for OU2 was issued on September 23, 1988, and consisted of extraction and treatment of contaminated groundwater. The ROD for OU2 was amended on September 23, 1998, and consisted of in-situ bioremediation for contaminant mass reduction in the source areas, monitored natural attenuation to address dissolved contaminant plumes in the groundwater downgradient from the source areas, and institutional controls to prevent exposure to the contaminated groundwater. In situ bioremediation was conducted in 2010 and performance monitoring occurred in 2011 and 2018. Based on the monitoring results, concentrations of contaminants in the groundwater remain above cleanup goals, and the extent of groundwater contamination is not completely delineated. Institutional controls are in place on the Site property, but institutional controls have not been implemented for parcels that overlie the shallow groundwater contamination that has migrated from the source area.

Environmental Indicators

Human Exposure Status: Insufficient Data
Contaminated Groundwater Status: Not Under Control
Site-Wide Ready for Reuse: Yes

Actions Needed

The following actions must be taken for the remedy to be protective: complete the sitewide groundwater monitoring event currently in progress and evaluate if the current monitoring network is sufficient to delineate the plume; delineate the plume both vertically and horizontally and reevaluate areas for vapor intrusion; determine if the current remedy is operating as intended; determine the existence and status of private wells in the area, determine if they are impacted, and implement institutional controls for the area above the groundwater plume to prevent exposure to contaminated groundwater as long as contaminants remain above the drinking water standards; utilize multiple lines of evidence to assess whether vapor intrusion is a concern at the residential apartment buildings or other areas east of the Site; and implement an operations and maintenance (O&M) and

sampling and analysis plan for maintenance of the monitoring well network, monitoring of institutional controls and to establish regular sampling events to evaluate the long-term effectiveness of the groundwater remedy.

Determination

A protectiveness determination of the remedy at OU2 cannot be made at this time, so a sitewide protectiveness determination cannot be made at this time. This Five-Year Review Report specifies the actions that need to be taken for the remedy to be protective.

WREN STENGER

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Director, Superfund Division
U.S. Environmental Protection Agency, Region 6

Date

CONCURRENCES

FIFTH FIVE-YEAR REVIEW REPORT
SOL LYNN/INDUSTRIAL TRANSFORMERS SUPERFUND SITE
EPA ID#: TXD980873327
HARRIS COUNTY, TX

June 11, 2020

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Remedial Project Manager

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ISSUES/RECOMMENDATIONS

FIFTH FIVE-YEAR REVIEW REPORT
SOL LYNN/INDUSTRIAL TRANSFORMERS SUPERFUND SITE
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OU(s): 2	Issue Category: Remedy Performance			
	Issue: In August 2018, a sitewide groundwater sampling event was conducted in water bearing zones (WBZs) 1 through 4, but many wells were not included due to silting and plugging issues. In November 2019 through February 2020, several monitoring wells were abandoned, while others were repaired. Additionally, the plume is not delineated in several WBZs, including WBZ-1. Since the plume is not delineated in WBZ-1, the potential for vapor intrusion downgradient of the source area is unknown.			
	Recommendation: Evaluate if the current monitoring network is sufficient to fully delineate the existing plume areas in all impacted WBZs both vertically and horizontally, install wells as needed and reevaluate areas for vapor intrusion.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party/Support Agency**	**Milestone Date**
Yes	Yes	EPA	EPA	9/30/2022

OU(s): 2	Issue Category: Remedy Performance			
	Issue: The contaminant of concern (COC) concentrations within the source area are decreasing, but concentrations remain one to five orders of magnitude over the performance values in WBZ-1 through 4. Exceedances of the 2004 Record of Decision (ROD) Amendment performance values are also prevalent in the plume areas that extend out from the source area.			
	Recommendation: Determine if the current remedy is operating as intended.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party/Support Agency**	**Milestone Date**
No	Yes	EPA	EPA	9/30/2023

OU(s): 2	Issue Category: Institutional Controls			
	Issue: The 2004 ROD Amendment called for institutional controls to prevent exposure to the contaminated groundwater as long as contaminants remain above the drinking water standards, and to prevent residential land use over areas of groundwater contamination until appropriate measures are implemented to remediate the risk from vapor intrusion into residences. Restrictive covenants are in place in several of the site parcels, but institutional controls have not been implemented for parcels that overlie the shallow groundwater contamination that has migrated from the source area. In addition, the status of some private wells within 0.25 miles of the Site are unknown including a domestic well north of the Site and an industrial well east of the Site. These wells may no longer be operable			
	Recommendation: Determine the existence and status of private wells in the area, determine if they are impacted, and implement institutional controls for the areas above the groundwater plume.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party/Support Agency**	**Milestone Date**
No	Yes	EPA	EPA	9/30/2021

OU(s): 2	Issue Category: Remedy Performance			
	Issue: Vinyl chloride concentrations at downgradient well, MW0301, remain above the performance value and there are no other sampling points further east. Directly east of MW0301 is a residential apartment complex. EPA has requested access for indoor air sampling, but access has been denied. EPA's vapor intrusion screening level (VISL) calculator indicates the potential for vapor intrusion in the residential apartment building located east of the Site.			
	Recommendation: Utilize multiple lines of evidence to assess whether vapor intrusion is a concern at the residential apartment buildings or other areas east of the Site.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party/Support Agency**	**Milestone Date**
Yes	Yes	EPA	EPA	9/30/2021

OU(s): 2	Operations and Maintenance			
	Issue: O&M is not occurring at the Site to maintain the monitoring well network and ensure effectiveness of institutional controls and there is no sampling and analysis plan.			
	Recommendation: An O&M and sampling and analysis plan should be implemented for maintenance of the monitoring network, monitoring of institutional controls and to establish regular sampling events. Regular sampling events will allow EPA to evaluate the long-term effectiveness of the remedy in addressing the groundwater contamination.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party/Support Agency**	**Milestone Date**
Yes	Yes	EPA	EPA	9/30/2022

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LIST OF ABBREVIATIONS AND ACRONYMS

bgs	Below Ground Surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	Contaminant of Concern
DCE	Dichloroethene
DNAPL	Dense Non-Aqueous Phase Liquid
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FS	Feasibility Study
FYR	Five-Year Review
HQ	Hazard Quotient
IC	Institutional Control
MCL	Maximum Contaminant Level
mg/kg	Milligrams per Kilogram
µg/L	Micrograms per Liter
$\mu g/m^3$	micrograms per cubic meter
MNA	Monitored Natural Attenuation
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethylene
PRP	Potentially Responsible Party
RAO	Remedial Action Objective
RBEL	Risk-Based Exposure Level
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
RSL	Regional Screening Level
TCE	Trichloroethylene
TCEQ	Texas Commission on Environmental Quality
TMC	Texas Medical Center
TR	Target Risk
TRRP	Texas Risk Reduction Program
TSCA	Toxic Substances Control Act
TWC	Texas Water Commission
UU/UE	Unlimited Use/Unrestricted Exposure
VISL	Vapor Intrusion Screening Level
WBZ	Water Bearing Zone

I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, 42 U.S.C. § 9621, consistent with the National Contingency Plan (NCP) (40 Code of Federal Regulations (CFR) Section 300.430(f)(4)(ii)) and considering EPA policy.

This is the fifth FYR for the Sol Lynn/Industrial Transformers Superfund site (the Site). The triggering action for this statutory review is the completion date of the previous FYR. The FYR has been prepared because hazardous substances, pollutants or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of two operable units (OUs), both of which are addressed in this FYR. OU1 addresses the soil remedy. OU2 addresses the groundwater remedy.

EPA remedial project manager (RPM) Bret Kendrick led the FYR. Participants included Kenan Nerad of the Texas Commission on Environmental Quality (TCEQ) and Alison Cattani and Treat Suomi from EPA FYR support contractor Skeo. The review began on 9/25/2019.

Site Background

The 0.75-acre Site is located about 6 miles southeast of downtown Houston, Texas (Figure 1). The Industrial Transformer Company, a small scrap metal and chemical recycling facility, operated on site from about 1965 to 1975. From 1975 to 1981, a chemical supply company, Sila King, Inc., leased a portion of the Site. Site activities contaminated soil and groundwater.

The Site currently consists of a vacant lot and a commercial complex that hosts several businesses. Parts of the complex are unoccupied. The Site is located in a mixed-use area that includes residential, commercial and light industrial areas. A light industrial and commercial business area is located directly east and southwest of the Site. South Loop Road and Interstate 610 are located directly north of the Site. The Reliant Park complex (Astrodome and Reliant Arena) are located about 4,000 feet to the northwest. The Site is located just southeast of the Texas Medical Center (TMC) area.

A groundwater contaminant plume emanates from the Site and extends in several directions. There are nine water bearing zones (WBZs) beneath the Site. The WBZs, consisting primarily of silty or sandy sediments, are each separated by a low-permeability clay zone. The uppermost four WBZs (WBZ-1 through WBZ-4) have been affected by contamination from the Site.

- WBZ-1 (previously called the 20-foot zone and the Shallow Aquifer): Depth of 18 to 24 feet below ground surface (bgs), groundwater flow is generally to the east-northeast but has varied over time, semi-confined, and hydraulically connected to WBZ-2 and WBZ-3.
- WBZ-2 (previously called the Uppermost Aquifer, the 40-foot zone and the Shallow Aquifer): Depth of about 33 to 40 feet bgs, consists of two zones (A and B), groundwater flow is generally to the northwest, a confined leaky system, and hydraulically connected to both WBZ-1 and WBZ-3.
- WBZ-3 (previously called the 60-foot zone): Consists of three distinct zones (WBZ-3A, B and C) at depths from 43 to 67 feet bgs. WBZ-3C is the most widespread layer and groundwater flow is radial from the center located under Interstate 610 and to the north-northeast in the northern portion of the Site.

- WBZ-4 (previously called the Intermediate Aquifer, the 80-foot zone and the Deep Aquifer): Depths of 80 to 90 feet bgs, groundwater flows to the west.
- WBZ-5 through 9: Depths ranging from 95 to 200 feet bgs, historically not impacted by site contamination.

The WBZs are not current sources of drinking water. Residences near the Site receive their potable water from the city of Houston water supply system. However, the WBZs are classified as Class IIB aquifers and have the potential for future use. There are no institutional controls currently in place to prevent the use of groundwater over the entire Site. To prevent the use of groundwater EPA has entered into an agreement for a restrictive covenant to be filed on the Site property. Appendix A provides a list of additional site-related resources. Appendix B provides the Site's chronology of events.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Sol Lynn/Industrial Transformers		
EPA ID: TXD980873327		
Region: 6	**State:** TX	**City/County:** Houston/Harris

SITE STATUS	
NPL Status: Final	
Multiple OUs? Yes	**Has the Site achieved construction completion?** Yes

REVIEW STATUS
Lead agency: EPA
Author name: Bret Kendrick, with additional support provided by Skeo
Author affiliation: EPA Region 6
Review period: 9/25/2019 – 9/30/2020
Date of site inspection: 11/7/2019
Type of review: Statutory
Review number: 5
Triggering action date: 9/30/2015
Due date *(five years after triggering action date)*: 9/30/2020

Figure 1: Site Vicinity Map

Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

In 1971, an investigation by the city of Houston Water Pollution Control Division found that workers at the Site poured oil out of electrical transformers as they were being dismantled. Oil and grease were observed on the soil and floating on ponded water as well as in ditches on the Site. In 1980 and 1981, an inspection by the Texas Water Commission (TWC), predecessor to TCEQ, and the city of Houston Department of Health found 75 empty and punctured drums stored at the Site labeled as trichloroethylene (TCE).

Following initial investigations by the city of Houston and TWC, EPA conducted the Site's initial remedial investigation (RI) in 1987 and 1988. The results of the investigation identified the presence of polychlorinated biphenyl (PCBs) in the soil and TCE in WBZs beneath the Site. The RI Report concluded that PCBs in the soil posed an increased cancer risk under the current commercial use scenario for workers, trespassers and commercial users of the on-site business via dermal exposure and ingestion. EPA placed the Site on the National Priorities List (NPL) in May 1989. To manage the cleanup, EPA divided the Site into two OUs: OU1 for soil contamination and OU2 for groundwater contamination.

A supplemental RI in 2002 identified nine WBZs to a depth of 200 feet bgs. TCE and TCE degradation products cis-1,2-dichloroethene (cis-1,2-DCE) and vinyl chloride were detected in the groundwater. TCE was found at concentrations exceeding 1 percent of its solubility in water, indicating possible dense non-aqueous phase liquid (DNAPL). However, DNAPL was not directly observed. Based on the data collected during the supplemental RI, groundwater showed three potential exposure routes: ingestion, dermal contact and vapor inhalation. The risks for potential exposures at the Site generally exceeded EPA's carcinogenic risk range of 1×10^{-6} to 10^{-4} and non-carcinogenic risks generally exceeded EPA's hazard quotient (HQ) of 1.0. Table 1 lists the contaminants of concern (COCs) associated with the Site, by media.

Table 1: COCs, by Media

COC	Media
PCBs	Soil
TCE Cis-1,2-DCE Vinyl chloride	Groundwater

Response Actions

OU1

EPA issued the Record of Decision (ROD) for OU1 in March 1988. The remedy consisted of excavation of 2,400 cubic yards of PCB-contaminated soils and treatment of the soils with a chemical dechlorination process. The ROD did not specify remedial action objectives (RAOs) but the general remedy objective was to remove the contaminated soils source. The cleanup standard, 25 milligrams per kilogram (mg/kg), was selected based on a commercial worker exposure scenario. EPA updated the ROD in September 1992 because of problems with the treatment technology. The 1992 ROD Amendment permitted the excavation and off-site disposal of remaining PCB-contaminated soils with concentrations above 25 mg/kg to an off-site Toxic Substances Control Act (TSCA) landfill.

OU2

EPA issued the ROD for OU2 in September 1988. The remedy consisted of groundwater extraction and treatment. The treatment included air stripping followed by vapor and liquid phase carbon absorption. The remedy was implemented in 1993. During the first FYR in 1999, EPA determined that the OU2 remedy had not worked properly. EPA conducted the 2002 supplemental RI and subsequently amended the remedy. EPA signed the ROD Amendment for OU2 in September 2004.

The RAOs specified in the 2004 OU2 ROD Amendment were:

- Restore the aquifer, including the source and plume areas, to drinking water standards for COCs within a reasonable timeframe (estimated at 30 years).
- Prevent or minimize future migration of groundwater contamination.
- Reduce or eliminate further contamination of groundwater from the source area.
- Prevent use of groundwater as drinking water for as long as contaminant concentrations remain above drinking water levels.
- Mitigate risk from subsurface vapor intrusion from groundwater to indoor air.
- Prevent residential exposure to indoor air above risk-based levels.

The ROD Amendment calls for in situ bioremediation for contaminant mass reduction in the source areas to remediate residual DNAPL. The ROD Amendment also specified monitored natural attenuation (MNA) to address and mitigate the dissolved contaminant plumes in groundwater downgradient from the source areas. Institutional controls were called for to prevent exposure to the contaminated groundwater for as long as contaminants remain at levels above the drinking water standards, and also to control residential land use over areas of groundwater contamination until appropriate measures are implemented to remediate the potential risk from vapor intrusion to possible future residential areas. Vapor intrusion was not considered a risk to the existing commercial/industrial areas.

The 2004 ROD Amendment provided performance values to include cleanup levels for TCE, cis-1,2-DCE and vinyl chloride in groundwater based on EPA's maximum contaminant levels (MCLs).

Table 2: Groundwater COC Performance Values

Groundwater COC	Performance Value (µg/L)	Basis
TCE	5	MCL
cis-1,2-DCE	70	MCL
Vinyl chloride	2	MCL
Notes: Source: 2004 ROD Amendment µg/L = micrograms per liter		

Status of Implementation

OU1
The amended remedy for OU1, which consisted of excavation and off-site disposal of remaining PCB-contaminated soils at a TSCA landfill, was completed in April 1993.

OU2
The 1988 OU2 ROD selected extraction and treatment as the groundwater remedy. The treatment included air stripping followed by vapor and liquid phase carbon absorption. The groundwater treatment system began pumping and treating contaminated groundwater on October 8, 1994. The pump-and-treat system operated until October 1996 when it was shut down because of system leaks. In 1998, investigations took place to further define the plume. Pumping began again in 1998 but was shut down permanently in 2000 when the first FYR Report stated that the remedy might not be protective of human health and the environment. EPA changed the groundwater remedy in the 2004 ROD Amendment. Due to issues with obtaining access from nearby landowners, EPA did not implement the amended remedy until 2010.

In February 2010, EPA's contractor demolished the former groundwater treatment plant. The building materials and underlying soil were removed and disposed of or recycled off site.

In situ bioremediation took place in 2010. EPA's contractor injected emulsified edible oil and lactate solution with diammonium phosphate into the subsurface in a pre-specified grid pattern using direct push technology. The mixture was injected into the upper WBZ first and then the tool was advanced into the lower zones. EPA's contractor injected the remediation fluids into 403 injection points. See Figure 4 for the 2010 injection areas. Following completion, the direct push rods, tubing and injection tools were retrieved. The initial performance monitoring for the injection was based on the 2007 pre-injection results and three post-injection events in 2010 and 2011. EPA reviewed the results and concluded that additional rounds of injection treatments would not be beneficial. EPA did not sample groundwater again until 2018. Between 2011 and 2018, several wells were damaged, plugged and unable to be sampled. The current extent of groundwater contamination is described further in the Data Review section of this FYR report.

Between November 2019 and February 2020, EPA's contractor conducted a well plugging, repair and redevelopment field event. A total of 64 wells were properly plugged and abandoned per Texas Department of Licensing and Regulation Administrative Code, Chapter 76, Rule §76.1004 and other city and/or county requirements. A total of 12 wells were repaired and 16 wells were redeveloped. The details of the field event were reported in the 2020 *Well Plugging, Repair, and Redevelopment Event Technical Memorandum* (Appendix A).

Institutional Control (IC) Review

The 2004 ROD Amendment called for institutional controls to prevent exposure to the contaminated groundwater plume as long as contaminants remain at levels above the drinking water standards and to control residential land use over areas of groundwater contamination until appropriate measures are implemented to remediate the risk from possible vapor intrusion to potential, future residential areas. Restrictive covenants currently prohibit residential use and the use of groundwater on the site parcels, but controls are not currently in place on other parcels that are underlain by contaminated groundwater (Table 3, Figure 2). In order to fully implement the groundwater institutional controls, the extent of groundwater contamination needs to be delineated. Based on the most recent data from 2018, portions of the plumes in several WBZs are not horizontally delineated.

In 2017, TCEQ conducted a well survey within one mile of the Site (Table I-1 and Figures I-1 and I-2). Most wells within one mile of the Site are used for industrial use and drilled below the WBZs impacted by the Site. Five wells are located within the 0.25-mile plume extent buffer (based on extent of groundwater contamination from 2011). TCEQ uses the 0.25-mile buffer when determining if a notice is needed to nearby well owners around a site with contaminated groundwater. Three of the five wells were installed prior to the issuance of the ROD.

One well is listed as a domestic well; EPA confirmed this well was not in use in the 2004 ROD Amendment. TCEQ contacted the property owner, and the owner indicated that he has no knowledge of a well on the property. Three of the wells, located northwest of the Site, are owned by a retirement community. According to the city water lines, this retirement community is served by city water. TCEQ contacted the retirement community that reported knowledge of only one well at this location that is used for irrigation, and that they are connected to city water. Based on the depth reported in the well survey, the irrigation well is likely screened below the WBZs at the Site. The remaining well, well 3223, is listed as an industrial well installed in 1968 at an unknown depth. This well is the closest well to the Site. TCEQ did not inquire about the status of the well, but based on the county parcel data, the parcel is currently vacant. Based on the well survey results, there does not appear to be a current or potential exposure to the contaminated groundwater plume.

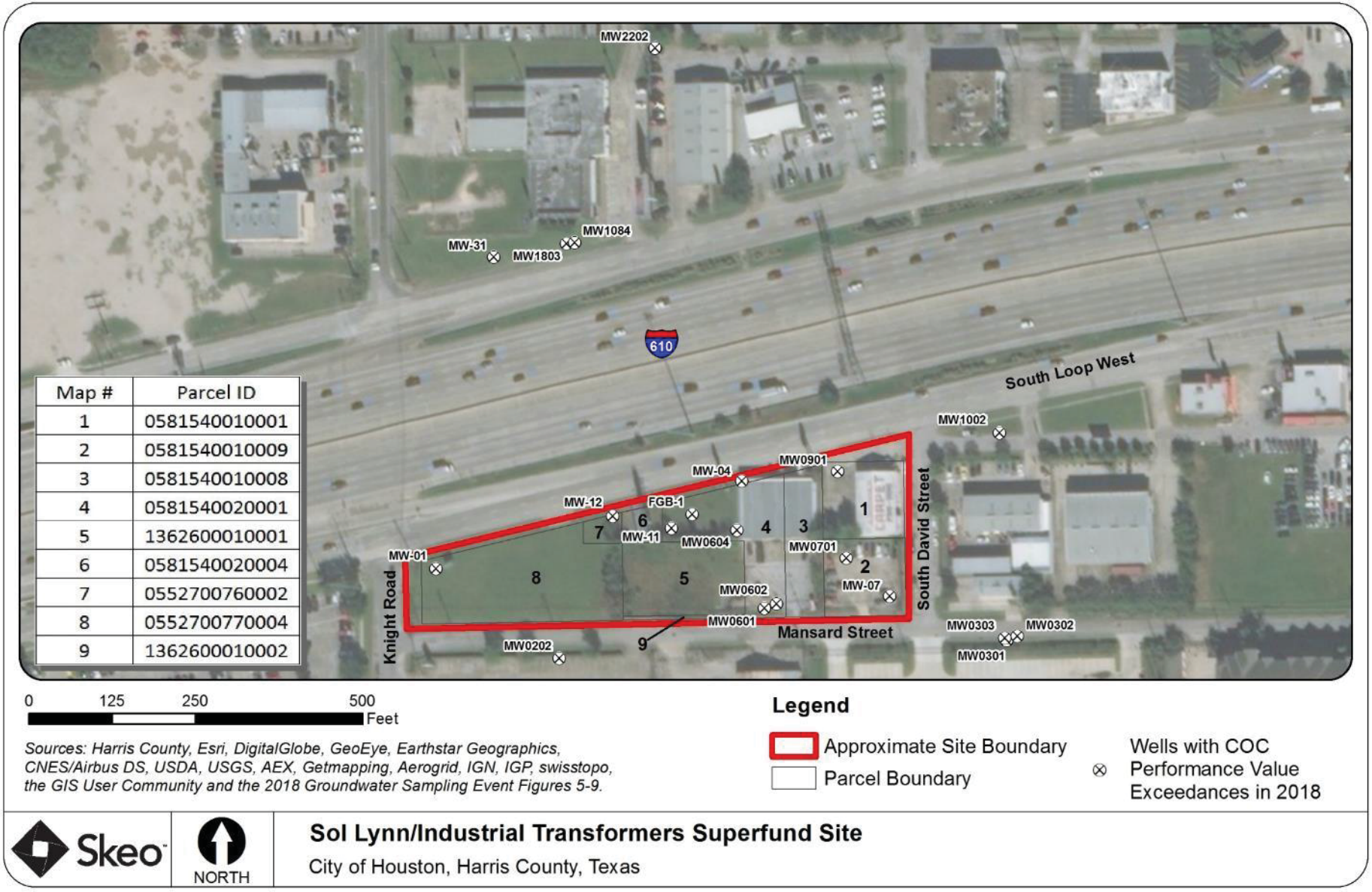
PCB-contaminated soil was removed from OU1 using a cleanup standard based on a commercial worker scenario. The Site is zoned commercial/industrial and currently consists of several commercial businesses as well as a vacant lot. The 1988 ROD did not call for institutional controls as part of the soils remedy, but an environmental covenant is in place restricting residential use on the entire site property (Table 3, Figure 2).

Table 3: Summary of Planned and/or Implemented Institutional Controls (ICs)

Media, Engineered Controls, and Areas That Do Not Support UU/UE Based on Current Conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date
Groundwater	Yes	Yes	Site parcels (Figure 2)	Restrict groundwater use until performance values are obtained.	1993 Restrictive Covenants
	Yes	Yes	Parcels overlying the groundwater plume		None
Vapor Intrusion	Yes	Yes	Site parcels (Figure 2)	Restrict residential land use over shallow groundwater contamination.	1993 Restrictive Covenants
	Yes	Yes	Parcels overlying the groundwater plume		None
Soil	Yes*	No	Site parcels (Figure 2)	Restrict residential land use on parcel cleaned up to commercial worker cleanup standard.	1993 Restrictive Covenants

Notes:
* = The original cleanup level was protective of commercial use; however, it may also be protective of residential use based on the current toxicity of PCBs. EPA will evaluate the cleanup level for PCBs in soil and clarify the acceptable land use for OU1 and record any institutional control requirements.

Figure 2: Institutional Control Map



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

Systems Operations/Operation and Maintenance (O&M)

An in-situ bioremediation injection was conducted at the Site in 2010, and the Site is currently in long-term remedial action following the implementation of the remedy. Currently routine O&M activities are not conducted onsite, and there is no O&M or Sampling and Analysis Plan in place. Non-routine O&M work has been occurring at the Site; in November and December 2019, EPA's contractor conducted a field event to repair, replace and abandon damaged monitoring wells, and a sampling event was carried out in 2018. At the Site there is a need for an O&M workplan, an issue which is being addressed in the recommendations for this FYR Report.

III. PROGRESS SINCE THE PREVIOUS REVIEW

This section includes the protectiveness determinations and statements from the previous FYR Report as well as the recommendations from the previous FYR Report and the status of those recommendations.

Table 4: Protectiveness Determinations/Statements from the 2015 FYR Report

OU #	Protectiveness Determination	Protectiveness Statement
Sitewide	Protectiveness Deferred	A protectiveness determination is deferred for the groundwater remedy at the Sol Lynn Industrial Transformers Superfund Site until further information is obtained for vapor intrusion and delineation of the contaminated groundwater plume. This will include an evaluation to determine the areas and buildings with potentially unacceptable risk due to vapor intrusion using current EPA vapor intrusion guidance. The vapor intrusion risk assessment should be updated using the current toxicity values following EPA exposure guidance. It is expected that these actions will take approximately one year to complete, at which time a protectiveness determination will be made.

Table 5: Status of Recommendations from the 2015 FYR Report

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
Sitewide	Approximately 49 monitoring wells are damaged and include damaged well pads, damaged outer casings, damaged annular seals, missing labels, missing outer casing lids, missing locks and missing inner casing lids (open to the atmosphere). A table lists the wells observed during the site visit.	Repair monitoring wells that continue to be needed to adequately define site conditions and properly plug wells no longer needed.	Completed	From November 2019 through February 2020, EPA's contractor conducted a field event to repair, replace and abandon damaged monitoring wells. A total of 64 wells were plugged and abandoned, 12 wells were repaired, and 16 wells were redeveloped.	2/28/2020
Sitewide	No groundwater monitoring in three years and all four upper zones had volatile organic results over Texas Risk Reduction	Sample all zones to determine current site conditions and take action as necessary.	Completed	In 2018, EPA's contractor sampled monitoring wells from WBZ-1, 2, 3 and 4 to establish current conditions. Results are discussed in the Data Review section of this FYR Report.	12/5/2018

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
	Program levels for TCE, DCE and vinyl chloride in 2011 and current conditions are unknown.				
Sitewide	Land use conditions have changed in the immediate area of the contaminated groundwater plume.	Sample all zones to determine current site conditions. Evaluate vapor intrusion conditions for the areas potentially impacted by the contaminated groundwater plume.	Completed	In 2018, EPA's contractor sampled monitoring wells from WBZ-1, 2, 3 and 4 to establish current conditions. Indoor air sampling events were conducted in 2015, 2017, 2018 and 2019. Results are discussed in the Data Review section of this FYR Report.	12/5/2018
Sitewide	The Administrative Record is not maintained at an appropriate location for public access.	The Administrative Record should be maintained in its entirety at a location easily accessible to the public.	Under Discussion	The Administrative Record has not been maintained at the current location (Houston Central Library). EPA is working on re-establishing the Administrative Record at the site repository.	Not Applicable
Sitewide	Potential exposure to site COCs at unacceptable levels due to vapor intrusion.	An evaluation to determine the areas and buildings with potentially unacceptable risk due to vapor intrusion should be conducted using current EPA vapor intrusion guidance. The vapor intrusion risk assessment should be updated using currently accepted toxicity values following EPA exposure guidance. Periodic indoor air monitoring should be conducted to ensure the remedy remains protective. Necessary action should be taken to address vapors intrusion above human health risk levels.	Ongoing	Indoor air monitoring events were conducted in 2015 and 2017 (on site and off site) and on-site indoor air sampling was conducted in 2018 and 2019. Indoor air samples collected from on-site businesses show exceedances of screening levels for vinyl chloride. Results are discussed in the Data Review section of this FYR Report. Since the groundwater contamination is not currently delineated, there may still be other areas where vapor intrusion is occurring.	Not Applicable
Sitewide	Eight unlabeled barrels from investigation-derived waste were left on site.	Properly dispose of the barrels as soon as possible.	Completed	EPA's contractor removed the barrels.	1/30/2015
Sitewide	Institutional controls (i.e. restrictive covenants) currently cover portions of the	An evaluation should be conducted, and institutional controls implemented in areas	Ongoing	EPA has not conducted an evaluation, but institutional controls are still needed to prevent possible future exposure from vapor	Not Applicable

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
	source area but are not in place on adjoining tracts and parcels that are underlain by the contaminant groundwater plume.	where the institutional controls are not in place to prevent possible future exposure from vapor intrusion and installation and use of drinking water wells in the plume area.		intrusion and installation and use of drinking water wells in the plume area.	

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Community Involvement and Site Interviews

A public notice was made available by a newspaper posting in the *Houston Chronicle*, on 10/28/2019 (Appendix C). It stated that the FYR was underway and invited the public to submit any comments to the EPA. The results of the review and the report will be made available at the Site's information repository, Houston Central Library, located at 500 McKinney Street, Houston, Texas 77002.

During the FYR process, interviews were conducted to document any perceived problems or successes with the remedy implemented to date**.** The interviews are summarized below, and interview forms are included in Appendix H.

EPA interviewed two business owners as part of the FYR. One business owner has owned a portion of the Site for a year. The owner indicated that they have a general knowledge of what has happened at the Site, EPA has kept them informed and they have no ongoing concerns. The other business owner has been a long-time owner of a portion of the Site. In general, they are aware of the cleanup and believe that EPA is doing its job. As an owner, they expressed concern that their property is undervalued and underused due to being part of a Superfund site. They have also had issues with trespassing and people driving across the property. The owner has installed wood barriers and signage to deter trespassing.

TCEQ project manager Kenan Nerad believes that cleanup activities at the Site have been appropriate and that monitoring well maintenance at the Site is an ongoing issue. Mr. Nerad believes the remedy is currently performing as intended with reduced contaminant levels in WBZ-1. Mr. Nerad indicated that WBZ-5 should be sampled since this zone has not been sampled recently and contamination may have migrated.

Data Review

During this FYR period, EPA conducted indoor air and groundwater monitoring and gauging events. The groundwater data were collected to update the current understanding of groundwater flow direction and groundwater contaminant concentrations in WBZ-1 through WBZ-4. The indoor air monitoring was conducted to ensure the groundwater contamination in the source area and the plume area was not resulting in vapor intrusion above acceptable levels in the businesses located on site and off site.

In addition to the monitoring conducted as part of the Site O&M, groundwater samples were collected to evaluate site conditions after Hurricane Harvey, which occurred in August 2017. The results were consistent with historical sample data.

Based on the data collected during this FYR period and prior data, while concentrations have decreased since the in-situ bioremediation was conducted in 2010, substantial contamination remains in all four groundwater zones. In addition, vapor intrusion might be occurring at some on-site buildings.

Indoor Air

EPA first collected indoor air samples in August 2010 at six locations. Samples were analyzed for tetrachloroethylene (PCE), TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE and vinyl chloride. Contaminants were detected only in indoor air samples collected from the structures located on site (sample locations VI-02, VI-04, VI-05, VI-08 and VI-14) (Tables 6 and 7). Indoor air samples collected from structures located off site but above the groundwater contamination did not detect any contaminants associated with the Site (Figure 3).

During this FYR period, indoor air samples were again collected at businesses located on the site property as well as several businesses located above the shallow groundwater plume. Indoor air samples were collected in September 2015, July 2017, August 2018, and February and August 2019. Table 6 shows the sampling identifications, addresses and dates sampled.

Table 6: Indoor Air Sampling Locations, 2010 to 2017

Sample ID	Sample Location	Dates Sampled
VI-01	1410 South Loop West	2010, 2015, 2017
VI-02	1419 South Loop West	2010, 2015, 2017, 2018, 2019
VI-03	1414 South Loop West	2010, 2015, 2017
VI-04	1417 South Loop West	2010, 2018, 2019
VI-05	1417B South Loop West	2010, 2015
VI-06	2191 Mansard Street/Former Water Treatment Plant (Background)	2010, 2015, 2018, 2019
VI-07	Trip Blank	2010, 2015, 2017
VI-08	1403 South Loop West	2010, 2015, 2017
VI-08A	2191 Mansard Street/Former Water Treatment Plant (Background)	2017
VI-09	1377 South Loop West	2017
VI-10	8273 Knight Road	2017
VI-11	2032 Mansard Street	2017
VI-12	2222 Mansard Street	2017
VI-14	1415 South Loop West	2018, 2019

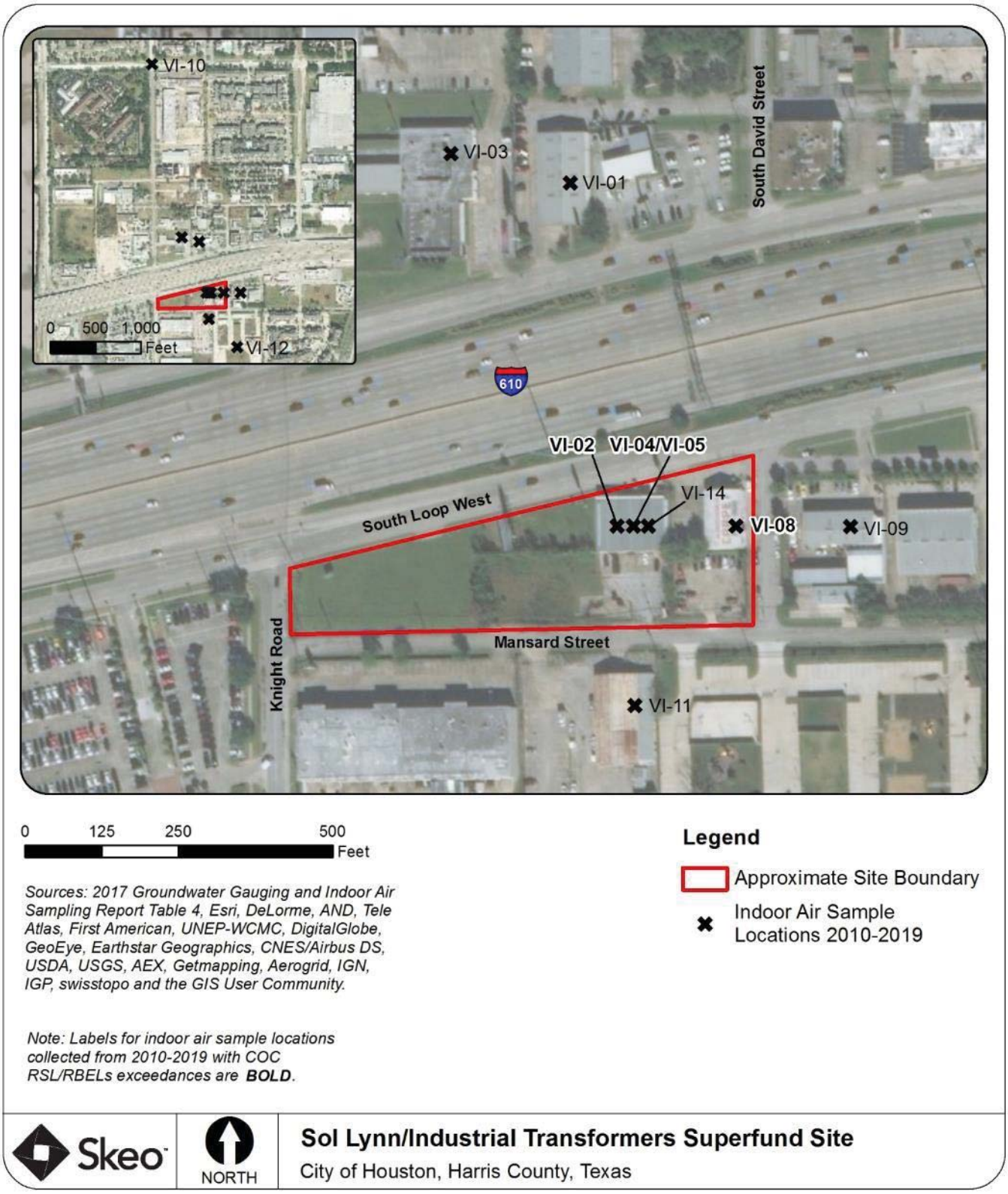
Samples were analyzed for the same constituents as in 2010. The results were compared to regional screening levels (RSLs) and/or Texas Risk Reduction Program (TRRP) risk-based exposure levels (RBELs) for commercial indoor air. During this FYR period, PCE, 1,1-DCE, cis-1,2-DCE and trans-1,2-DCE were below detection limits and/or below RSLs/RBELs. Vinyl chloride was detected above the RSL/RBEL at VI-02, VI-04, VI-05 and VI-08, all of which are located on the site property. The maximum concentrations were mainly from 2015 with the exception of VI-02 (2017). In November 2018, TCE at VI-04 slightly exceeded the RBEL and was the same as the RSL (3 micrograms per cubic meter [$\mu g/m^3$]). The business area associated with VI-02 has been unoccupied since July 2019. However, the business area associated with VI-04/VI-05 is currently occupied by an automobile insurance company. The business area associated with VI-08 is intermittently occupied due to issues with flooding. The business owners are notified of the sampling and provided with the results. Table 7 shows the maximum detected results for each COC and their respective RSL/RBELs. A complete set of sampling results for indoor air are provided in Appendix F (Tables F-1 through F-4). While the concentrations at some on-site locations have exceeded the screening levels, the calculated risk associated with these concentrations are within EPA's acceptable risk range (see Question B in this FYR report). EPA will continue to monitor indoor air at the on-site buildings and any other buildings as necessary and take appropriate mitigation measures if needed.

Table 7: Maximum Detected Indoor Air Concentrations in On-Site Buildings, 2010 to 2019

Sample ID	PCE	TCE	1,1-DCE	trans-1,2-DCE	cis-1,2-DCE	Vinyl Chloride
RSL TR[a]	**47**	**3**	**--**	**--**	**--**	**2.8**
RSL HI[b]	**180**	**8.8**	**880**	**--**	**--**	**440**
RBEL[c]	**110**	**2.9**	**500**	**88**	**88**	**4.9**
VI-02	3.94[d]	1.39	0.40[e]	0.57[e]	29.1	***58.7 (2017)***
VI-04	1.61	*3.00*	ND	0.24	23.2	***39.0 (2015)***
VI-05	ND	2.80[e]	ND	0.48	45[d]	***74.8 (2015)***
VI-08	ND	0.32	ND	ND	14.8	***39.2[f] (2015)***
VI-14	ND	0.93	ND	ND	0.56	1.16 J

Notes:
All results shown in µg/m^3.
J = reported value is estimated.
ND = not detected.
Bold = exceeds EPA RSL.
Italics = exceeds TRRP RBEL.
a. Target Risk (TR) under composite worker exposure scenario (accessed at https://semspub.epa.gov/work/HQ/199448.pdf on 11/11/2019).
b. Noncancer hazard index (HI) under composite worker exposure scenario (accessed at https://semspub.epa.gov/work/HQ/199448.pdf on 11/11/2019).
c. TRRP RBEL based on commercial exposure scenario, the lower of the carcinogenic and noncarcinogenic shown (accessed at https://www.tceq.texas.gov/assets/public/remediation/trrp/2018-PCL-Tables.pdf on 11/11/2019).
d. Listed result is the higher of the parent and duplicate sample result.
e. Result was from a duplicate; parent sample was not detected above laboratory method detection limit.
f. The 2010 and 2017 vinyl chloride results at VI-08 were not detected.

Figure 3: Indoor Air Sampling Locations



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

Groundwater Monitoring
In May 2017, EPA's contractor gauged 19 monitoring wells in WBZ-1 and 28 monitoring wells in WBZ-2 to evaluate groundwater flow direction. Results were compared to historic gauging events in 2007, 2010 and 2011.

In August 2018, EPA's contractor gauged 96 wells and sampled 29 wells across all four zones. These wells are shown on Figure 4. The wells sampled in 2018 include:

- WBZ-1: FGB-1[1], MW0301, MW0601, MW0701, MW0901, MW1101, MW-24 and SZE-4.
- WBZ-2: MW-01, MW0202, MW0302, MW-04, MW0602, MW-07, MW1002, MW-11, MW-12, MW2002, MW2202, MW2402, MW2602, MW-30, MW-31 and MW3502.
- WBZ-3: MW0303, MW1803 and MW2303.
- WBZ-4: MW0604 and MW1804.

The following wells could not be sampled due to obstruction, silting or the presence of emulsified vegetable oil:

- MW0101, MW0102, MW0702, MW0703, MW0903, MW1001, MW1102, MW1104, MW1701, MW1702, MW1901, MW1902, MW1903, MW2001, MW2101, MW2201, MW2503, MW-26, MW2604, SE-4 and SZR-1.

<u>WBZ-1</u>
EPA's contractor documented an east-northeast groundwater flow direction in WBZ-1 in 2017 and 2018. The potentiometric surface maps are provided in Appendix F, Figures F-1 and F-2. Prior to 2017, groundwater flow direction was documented to the north-northwest, south-southeast and east, indicating that groundwater flow has varied over time. EPA's contractor has attributed the variation in groundwater flow direction to changes in pumping stress in the area due to major development to the northwest.

The groundwater data collected in August 2018 indicated the continued exceedance of groundwater MCLs for TCE, cis-1,2-DCE and vinyl chloride. Exceedances of one or more performance values was observed at five wells, including FGB-1, MW0301, MW0601, MW0701 and MW0901. These wells were last sampled in 2011. The 2011 and 2018 concentrations are compared at each well with an exceedance in Table 8.

Table 8: COC Concentrations at Select WBZ-1 Wells, 2011 and 2018

Monitoring Well	Date	TCE	cis-1,2-DCE	Vinyl chloride
	Performance Value	5	70	2
FGB-1[a]	2011	**14,500**	**13,700**	**2,800**
	2018	**1,020**	**2,630**	**4,080**
MW0301	2011	*<25*	**50,900**	**24,800**
	2018	*<10*	**129**	**9,970**
MW0601[a,b]	2011	**565**	**96,900**	**28,100**
	2018	**390 J**	**30,700 J**	**9,220**
MW0701[a]	2011	**9,150**	**13,300**	**745**
	2018	**1,550 J**	**4,070 J**	**414 J**
MW0901	2011	NS	NS	NS
	2018	<1	3.3	**8.6 J**

Notes:
All concentrations are reported in µg/L.
J = estimated value.
NS = not sampled.
Bold = exceeds ROD performance value.
Italics = detection limit exceeds ROD performance value.

[1] Well FGB-2 was listed as a sampled well in the 2018 Groundwater Monitoring Report. However, this well is not shown on the provided figures and no data were provided for this well in the report.

a. In 2018, this well was sampled via passive diffusion bag and then a second sample was collected via low flow sampling results. The higher of the two results is shown.
b. The higher of the duplicate and parent sample results is shown.

In general, concentrations in WBZ-1 have decreased over the last seven years in the wells sampled as part of the 2018 event. However, they remain two to four orders of magnitude over the performance value at four of these wells. In addition, several wells that were above performance values for TCE in 2011 were not sampled in 2018 due to obstruction, silting or the presence of emulsified vegetable oil. Exceedances were not observed in MW-24, which is upgradient of the source area, or in MW1101, which is downgradient of the source area. However, there is not a well located downgradient of MW0301, which has the highest concentrations of vinyl chloride (Figure 4). Wells located side gradient of the source area that had historically exceeded the TCE performance value could not be sampled. In order to ensure that shallow groundwater contamination is not migrating, a sampling event should be conducted that includes all remaining wells. Additional wells or sampling points may be needed east (downgradient) of MW0301 and the potential for vapor intrusion may need to be evaluated further in this area.

WBZ-2

EPA's contractor documented a northwest groundwater flow direction in WBZ-2 in 2017 and 2018. This is consistent with flow direction observed in previous years. The potentiometric maps are provided in Appendix F, Figures F-3 and F-4.

The groundwater contaminant concentrations in WBZ-2 are higher and the plume more extensive than the concentrations observed in WBZ-1. Eleven out of 16 wells exceeded the performance value for one or more COCs and every COC had at least one exceedance in wells sampled from WBZ-2. The highest concentrations of TCE are similar to or less than the 2011 results for the wells sampled, with the exception of MW-07, which shows a higher TCE concentration in 2018. However, some wells were not sampled in 2011. The highest concentrations of TCE, up to five orders of magnitude over the performance value, are in the immediate vicinity of the original source area. Concentrations of cis-1,2-DCE and vinyl chloride have increased in some wells. In some instances, such as MW-11 and MW-12, this increase may be attributed to the degradation of TCE and/or cis-1,2-DCE since the increase in a degradation product is observed as well as a decrease in the parent product. In other instances, such as MW-31 and MW-07, concentrations of TCE have only slightly decreased and/or increased. However, cis-1,2-DCE and vinyl chloride have increased as much as an order of magnitude.

Several wells with exceedances of the performance values are the furthest downgradient wells, including MW-01 and MW-31 and there are not any wells located downgradient of these. In order to ensure that groundwater contamination is not moving off site, additional wells or sampling points may be needed north or west (downgradient) of MW-01 and MW-31.

Table 9: COC Concentrations at Select WBZ-2 Wells, 2011 and 2018

Monitoring Well	Date	TCE	cis-1,2-DCE	Vinyl chloride
	Performance Value	5	70	2
MW-01	2011	NS	NS	NS
	2018	**1,950**	**5,420**	**119**
MW0202	2011	NS	NS	NS
	2018	**51**	**294**	**575**
MW0302	2011	**95**	**204,000**	**32,200**
	2018	**14.9**	**120**	**19,600**
MW-04[a]	2011	**133,000**	**40,300**	**2,250**
	2018	**101,000**	**57,800**	**7,350**
MW0602	2011	NS	NS	NS
	2018	**2,500**	**23,500**	**671**
MW-07[a,b]	2011	*<25.0*	**1,330**	**48,100**
	2018	**120**	**80,500 J**	**89,200 J**
MW1002	2011	NS	NS	NS
	2018	**88.8 J**	**1,860**	**242**
MW-11[a]	2011	**221,000**	**270,000**	**730**
	2018	**189 J**	**173,000**	**119,000**
MW-12[a,b]	2011	**78,600**	**186,000**	**7,200**
	2018	**1,110 J**	**117,000 J**	**74,500**
MW2202	2011	**206**	<0.5	<0.5
	2018	**185**	<1.0	<1.0
MW-31[a,c]	2011	**81,700**	**630**	**213**
	2018	**75,700**	**5,930 J**	**2,070 J**

Notes:
All concentrations are reported in µg/L.
J = estimated value.
NS = not sampled.
Bold = exceeds ROD performance value.
Italics = detection limit exceeds ROD performance value.
a. In 2018, this well was sampled via passive diffusion bag and then a second sample was collected via low flow sampling results. The higher of the two results is shown.
b. The higher of the duplicate and parent sample results is shown.
c. This well was not sampled in 2011. Results are shown for 2010 and 2018.

WBZ-3

Groundwater flow as measured in 2018 indicates a radial flow from the center located under Interstate 610 and then north-northeast in the northern portion of the Site. Previous groundwater flow directions were southeast or northwest in the northern portion of the Site and northeast in the southern portion of the Site. The potentiometric surface map for 2018 is provided in Appendix F, Figure F-5.

EPA's contractor sampled three WBZ-3 wells in 2018. TCE, cis-1,2-DCE and vinyl chloride were above respective performance values in two of the three wells (MW0303 and MW1803). Concentrations at the other well, MW2303, did not exceed the performance value for any COC. Concentrations have increased by up to two orders of magnitude in MW1803, which is the furthest downgradient well sampled. In order to ensure groundwater contamination is not moving off site, sampling should be conducted at MW1703, which is located downgradient of well MW1803, and additional wells installed if needed to delineate contamination to the north-northeast in WBZ-3.

Table 10: Concentrations at Select WBZ-3 Wells, 2011 and 2018

Monitoring Well	Date	TCE	cis-1,2-DCE	Vinyl chloride
	Performance Value	**5**	**70**	**2**
MW0303	2011	**17,800**	**42,700**	*<20.0*
	2018	**8,800**	**43,900 J**	**347**
MW1803[a,b]	2011	**19,600**	40	*<10.0*
	2018	**171,000**	**4,000 J**	**17.3**

Notes:
All concentrations are reported in µg/L.
J = estimated value.
Bold = exceeds ROD performance value.
Italics = detection limit exceeds ROD performance value.
a. In 2018, this well was sampled via passive diffusion bag and then a second sample was collected via low flow sampling results. The higher of the two results is shown.
b. The higher of the duplicate and parent sample results is shown.

WBZ-4

EPA's contractor estimated groundwater flow direction in WBZ-4 to the west, which is consistent with historic groundwater flow direction. The potentiometric maps are provided in Appendix F, Figure F-5.

Two wells, MW0604 and MW1804, were sampled in the 2018 sampling event. TCE concentrations exceeded respective performance values in both wells, and cis-1,2-DCE and vinyl chloride were above the performance value in MW0604. TCE concentrations as well as cis-1,2-DCE and vinyl chloride concentrations at MW0604 have increased (Table 11). This well is located downgradient of the source area and no other downgradient wells were sampled in 2018. Any remaining wells downgradient of MW0604 should be sampled during the next sampling event if possible and additional wells installed if needed to delineate contamination in WBZ-4.

Table 11: COC Concentrations at Select WBZ-4 Wells, 2011 and 2018

Monitoring Well	Date	TCE	cis-1,2-DCE	Vinyl chloride
	Performance Value	**5**	**70**	**2**
MW1804 [a,b]	2011	NS	NS	NS
	2018	**14.8 B**	1.4B	<1.0
MW0604	2011	**11,900**	12.2	*<10*
	2018	**13,100**	**1,250**	**125**

Notes:
All concentrations are reported in µg/L.
J = estimated value.
B = analyte found in associated blank.
NS = not sampled.
Bold = exceeds ROD performance value.
Italics = Detection limit exceeds ROD performance value.
a. In 2018, this well was sampled via passive diffusion bag and then a second sample was collected via low flow sampling results. The higher of the two results is shown.
b. The higher of the duplicate and parent sample results is shown.

Hurricane Harvey Groundwater Sampling

On September 9, 2017, groundwater was collected and analyzed for volatile organic compounds to evaluate the potential effects from Hurricane Harvey. The compounds TCE, cis-1,2-DCE, and vinyl chloride were detected at locations and concentrations consistent with historical (pre-Hurricane Harvey) sample data.

Figure 4: Injection Areas and Groundwater Monitoring Locations

Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

Site Inspection

The site inspection took place on 11/7/2019. Participants included EPA RPM Bret Kendrick, Kenan Nerad of TCEQ, and Alison Cattani and Treat Suomi from EPA FYR support contractor Skeo. The purpose of the inspection was to assess the protectiveness of the remedy. Site inspection participants observed the area of the Site where contaminated soil was removed. This area is currently vacant with well-maintained grass. Signage was present indicating the property is available for development. Participants then observed buildings located on site where ongoing air monitoring is conducted. Groundwater monitoring wells located on site and off site were observed. Some wells were damaged or in poor condition. EPA subsequently plugged, repaired or redeveloped groundwater wells during a field event conducted from November 2019 through February 2020.

The site inspection checklist and photos are included in Appendix D and Appendix E, respectively.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

The OU1 remedy is functioning as intended by the 1992 ROD Amendment. PCB-contaminated soil was removed and disposed of off-site at a TSCA landfill. The cleanup standard, 25 mg/kg, was based on the commercial worker exposure scenario, which remains appropriate for the Site. The current use is a mix of vacant land and commercial businesses. A 1993 restrictive covenant is currently in place for the site parcels restricting residential land use.

The OU2 remedy may not be functioning as intended by the decision documents, but the status of the OU2 remedy is not possible to determine without additional sampling data. The 2004 ROD Amendment specified in situ bioremediation for the source area and DNAPL and MNA for the dissolved groundwater plumes. The COC concentrations within the source area decreased between 2011 and 2018, but concentrations remain one to five orders of magnitude over the performance values in WBZ-1 through 4. It appears MNA is occurring in some areas based on the decrease in concentration and presence of breakdown products; however exceedances of the 2004 ROD Amendment performance values are also prevalent in the plume areas that extend out from the source area and based on the current understanding of groundwater flow direction and the functional network of monitoring wells, may not be fully delineated in WBZ-1 through 4. For example, no monitoring wells are located downgradient of WBZ-1 well MW0301 which has vinyl chloride concentrations close to 10,000 µg/L.

Approximately 49 wells were damaged or plugged and unable to be sampled. Several other wells were no longer needed. From November 2019 through February 2020, EPA plugged and abandoned 64 wells, repaired 12 wells and redeveloped 16 wells. A sitewide monitoring event is currently in progress at the Site. Based on the results of this monitoring event, EPA will evaluate if the current monitoring network is sufficient to fully delineate the existing plume areas in all impacted WBZs. There is also not an O&M and sampling and analysis plan in place. An O&M and sampling and analysis plan should also be developed and implemented for maintenance of the monitoring well network, monitoring of institutional controls and to establish regular sampling events. Regular sampling events will allow EPA to evaluate the effectiveness of the remedy in addressing the groundwater contamination in OU2.

The 2004 ROD Amendment called for institutional controls for residential land use over the groundwater plume and use of contaminated groundwater. Restrictive covenants are in place for the site property prohibiting groundwater use and residential land use, but institutional controls have not been implemented for parcels that overlie the shallow groundwater contamination that has migrated from the source area. TCEQ conducted a well survey in 2017. Based on the results, there does not appear to be a current or potential exposure to the contaminated groundwater plume through ingestion of contaminated groundwater. The status of some of the wells within 0.25 miles of the Site are unknown, including a domestic well north of the Site and an industrial well east of the Site. These wells may no longer be operable. In order to ensure long-term protectiveness, EPA will determine if unused private wells in the area can be located and abandoned and institutional controls implemented for the area above the groundwater plume. The shallow groundwater contamination has migrated and its

boundaries are unknown at this time so it is unknown whether the remedy as it relates to vapor intrusion is operating as intended.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels and RAOs used at the time of the remedy selection still valid?

The exposure assumptions, cleanup levels and RAOs used at the time of the remedy are still valid.

The current RSL for PCBs in soil under a commercial worker scenario is 0.94 mg/kg, which is less than the cleanup standard of 25 mg/kg.[2] The associated risk of the cleanup standard is 3 x 10^{-5}, which is within EPA's acceptable cancer risk range of 1 x 10^{-6} to 1 x 10^{-4} and therefore remains protective under the commercial-use scenario.

The 2004 ROD Amendment groundwater performance values are based on the EPA MCLs. These MCLs have not changed since the 2004 ROD Amendment was issued and remain valid.[3] While the groundwater performance values remain valid, there are several detected groundwater analytes that exceed MCLs in the current groundwater plume, including PCE and trans-1,2-DCE, that were not addressed in the 2004 ROD Amendment. EPA will determine if it is necessary to add these COCs as part of an updated remedy and add performance standards for them in a decision document, if appropriate.

The exposure assumptions used at the time of the remedy selection are currently being assessed for their validity related to the vapor intrusion pathway. While vapor intrusion was evaluated in the 2004 ROD Amendment, the risk was associated mainly with potential future residential use above the groundwater plume. Currently, several businesses are located above the plume. Additionally, as described below, plume delimitation near a nearby residential apartment complex is inadequate and the potential for current vapor intrusion is unknown. At the recommendation of the 2015 FYR Report, indoor air sampling was conducted at various commercial properties located above the groundwater contamination plume. Results were compared to the indoor air RSLs and TRRP RBELs for worker exposures. Vinyl chloride was detected above the RSL/RBEL at VI-02, VI-04, VI-05 and VI-08, all of which are located on the site property. The business area associated with VI-02 has been unoccupied since July 2019. However, the business area associated with VI-04/VI-05 is currently occupied. All of the business/property owners are notified of the sampling and provided with the results. In order to assess the risk to human health, the maximum detected concentrations for each contaminant were evaluated using a screening level risk assessment based on the current EPA RSLs for a composite worker for indoor air. The results, shown in Table G-1 in Appendix G, indicate that all contaminant risk as well as the cumulative risk are less than or within EPA's acceptable cancer risk range and below the noncancer HQ of 1. EPA will continue to monitor the indoor air on site.

During the groundwater monitoring event conducted in 2018, groundwater in WBZ-1 was observed flowing in an east-northeast direction. Vinyl chloride concentrations at downgradient well, MW0301, remain above the performance value and there are no other sampling points further east. Directly east of MW0301 is a residential apartment complex. EPA has requested access for indoor air sampling, but access has been denied. Utilizing EPA's Vapor Intrusion Screening Level (VISL) calculator and the 2018 vinyl chloride concentration in groundwater, this FYR calculated the predicted indoor air concentration and associated cancer and non-cancer risk (Table G-2 in Appendix G). The cancer risk was outside the EPA recommended cancer risk range of 1 x 10^{-6} to 1 x 10^{-4} and above the non-cancer hazard quotient of 1 based on residential use. While the VISL is conservative, the model indicates the potential for vapor intrusion in the residential apartment building located east of the Site. Located immediately south of MW0301 and just upgradient of the residential apartment building

[2] The RSL is for PCBs (high risk).
[3] Current MCLs are located here: https://www.epa.gov/sites/production/files/2016-06/documents/npwdr_complete_table.pdf (accessed on 01/27/2020)

is a religious center that was accessed for indoor air sampling in 2017. Site-related contaminants were not detected (VI-12, Table F-1 in Appendix F). Based on the results from VI-12, it is unlikely that vapor intrusion is occurring at the residential apartment buildings. However, because the plume is not delineated in this area, the risk is unknown. EPA should utilize multiple lines of evidence to assess whether vapor intrusion is a concern at the residential apartment buildings or other areas east of the Site.

The OU1 remedy met the RAO of removing contaminated soil from the Site. The OU2 RAOs have not been met. The aquifer zones beneath the Site remain well above cleanup standards 10 years after the in-situ bioremediation was conducted. More data should be collected to determine if the dissolved plume is migrating and if there are remaining source areas outside the previous treatment areas causing some wells to exhibit an increase in TCE. Groundwater is not currently in use in the area of the Site. However, there are no institutional controls in place to prevent its use. To prevent the use of groundwater EPA has entered into an agreement for a restrictive covenant to be filed on the Site property.

QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?

No other information has come to light that could call into question the protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the FYR:
OU 1

Issues and Recommendations Identified in the FYR:

OU(s): 2	**Issue Category: Remedy Performance**			
	Issue: In August 2018, a sitewide groundwater sampling event was conducted in water bearing zones (WBZs) 1 through 4, but many wells were not included due to silting and plugging issues. In November 2019 through February 2020, several monitoring wells were abandoned, while others were repaired. Additionally, the plume is not delineated in several WBZs, including WBZ-1. Since the plume is not delineated in WBZ-1, the potential for vapor intrusion downgradient of the source area is unknown.			
	Recommendation: Evaluate if the current monitoring network is sufficient to fully delineate the existing plume areas in all impacted WBZs both vertically and horizontally, install wells as needed and reevaluate areas for vapor intrusion evaluation.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party/Support Agency**	**Milestone Date**
Yes	Yes	EPA	EPA	9/30/2022

OU(s): 2	Issue Category: Remedy Performance			
	Issue: The COC concentrations within the source area are decreasing, but concentrations remain one to five orders of magnitude over the performance values in WBZ-1 through 4. Exceedances of the 2004 ROD Amendment performance values are also prevalent in the plume areas that extend out from the source area.			
	Recommendation: Determine if the current remedy is operating as intended.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party/Support Agency**	**Milestone Date**
No	Yes	EPA	EPA	9/30/2023

OU(s): 2	Issue Category: Institutional Controls			
	Issue: The 2004 ROD Amendment called for institutional controls to prevent exposure to contaminated groundwater as long as contaminants remain above the drinking water standards, and to prevent residential land use over areas of groundwater contamination until appropriate measures are implemented to remediate the risk from vapor intrusion into residences. Restrictive covenants are in place in several of the site parcels, but institutional controls have not been implemented for parcels that overlie the shallow groundwater contamination that has migrated from the source area. In addition, the status some private wells within 0.25 miles of the Site are unknown including a domestic well north of the Site and an industrial well east of the Site. These wells may no longer be operable.			
	Recommendation: Determine the existence and status of private wells in the area, determine if they are impacted and implement institutional controls for the areas above the groundwater plume.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party/Support Agency**	**Milestone Date**
No	Yes	EPA	EPA	9/30/2021

OU(s): 2	Issue Category: Remedy Performance
	Issue: Vinyl chloride concentrations at downgradient well, MW0301, remain well above the performance value and there are no other sampling points further east. Directly east of MW0301 is a residential apartment complex. EPA has requested access for indoor air sampling, but access has been denied. EPA's VISL calculator indicates the potential for vapor intrusion in the residential apartment building located east of the Site.

	Recommendation: Utilize multiple lines of evidence to assess whether vapor intrusion is a concern at the residential apartment buildings or other areas east of the Site.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party/Support Agency**	**Milestone Date**
Yes	Yes	EPA	EPA	9/30/2021

OU(s): 2	**Operations and Maintenance**			
	Issue: O&M is not occurring at the Site to maintain the monitoring well network and ensure effectiveness of institutional controls and there is no sampling and analysis plan.			
	Recommendation: An O&M and sampling and analysis plan should be implemented for maintenance of the monitoring network, monitoring of institutional controls and to establish regular sampling events. Regular sampling events will allow EPA to evaluate the long-term effectiveness of the remedy in addressing the groundwater contamination.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party/Support Agency**	**Milestone Date**
Yes	Yes	EPA	EPA	9/30/2022

OTHER FINDINGS

An additional recommendation was identified during the FYR. This recommendation does not affect current and/or future protectiveness.

- Reestablish the Site's information repository.

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)	
Operable Unit: 1	*Protectiveness Determination:* Protective
Protectiveness Statement: The remedy at OU1 currently protects human health and the environment because contaminated soil has been removed and disposed of off-site. OU1 was cleaned up to industrial standards and is currently zoned industrial. A restrictive covenant is in place that prohibits residential use based on risks from vapor intrusion.	

Protectiveness Statement(s)		
Operable Unit: 2	*Protectiveness Determination:* Protectiveness Deferred	*Planned Addendum Completion Date:* 9/30/2022
Protectiveness Statement: A protectiveness determination of the remedy at OU2 cannot be made at this time until further information is obtained. Further information will be obtained by taking the following actions: delineate the plume and reevaluate areas for vapor intrusion and utilize multiple lines of evidence to assess whether vapor intrusion is a concern at the residential apartment buildings or other areas east of the Site. Additionally, in order for the remedy to be protective in the long term, the following actions need to be taken: • Determine if unused private wells in the area can be located and abandoned and implement institutional controls for the area above the groundwater plume; and • Implement an O&M and sampling and analysis plan which will allow for the maintenance of the monitoring well network, monitoring of institutional controls and to establish regular sampling events. Regular sampling events will delineate the extent of the plume and allow for the continued evaluation of the effectiveness of the remedy in addressing the groundwater contamination.		

Sitewide Protectiveness Statement	
Protectiveness Determination: Protectiveness Deferred	*Planned Addendum Completion Date:* 9/30/2022
Protectiveness Statement: A protectiveness determination for the site cannot be made at this time until further information is obtained for OU2. Further information will be obtained by taking the following actions related to OU2: delineate the plume and reevaluate areas for vapor intrusion. In order the ensure long term protectiveness, the following actions are needed: For OU2: • Determine if unused private wells in the area can be located and abandoned and implement institutional controls for the area above the groundwater plume; and • Implement an O&M and sampling and analysis plan which will allow for the maintenance of the monitoring well network, monitoring of institutional controls and to establish regular sampling events. Regular sampling events will allow for the continued evaluation of the effectiveness of the remedy in addressing the groundwater contamination.	

VIII. NEXT REVIEW

The next FYR Report for the Sol Lynn/Industrial Transformers Superfund site is required five years from the completion date of this review.

APPENDIX A – REFERENCE LIST

2017 Ground Water Gauging and Indoor Air Sampling, Sol Lynn Superfund Site. Prepared by EA Engineering, Science, and Technology, Inc., PBC. September 2017.

2018 Ground Water Sampling Event, Sol Lynn Superfund Site. Prepared by EA Engineering, Science, and Technology, Inc., PBC. December 2018.

First Five-Year Review, Sol Lynn/Industrial Transformers Site, Houston, Texas. EPA Region 6. October 1999.

Fourth Five-Year Review, Sol Lynn Industrial Transformers Superfund Site, Houston, Harris County, Texas. EPA Region 6. September 2015.

Indoor Air Sampling Report, Sol Lynn/Industrial Transformers Site, Houston, Texas. EPA Region 6. November 2018.

Indoor Air Sampling Report, Sol Lynn/Industrial Transformers Site, Houston, Texas. EPA Region 6. March 2019.

Indoor Air Sampling Report, Sol Lynn/Industrial Transformers Site, Houston, Texas. EPA Region 6. October 2019.

November 2019 – February 2020 Well Plugging, Repair and Redevelopment Event Technical Memorandum, Revision 00, Sol Lynn/Industrial Transformer Superfund Site, Houston, Harris County, Texas. Prepared by EA Engineering, Science, and Technology, Inc. February 28, 2020.

RAC II Statement of Work for Remedial Design, Revision 0, Sol Lynn/Industrial Transformers Superfund Site, Houston, Harris County, Texas. EPA Region 6, June 26, 2019.

Record of Decision, Sol Lynn Superfund Site, Houston, Harris County, Texas. EPA Region 6. March 25, 1988.

Record of Decision Amendment, Sol Lynn Superfund Site, Houston, Texas. EPA Region 6. September 30, 2004.

Remedial Action Report (Revision 01), Sol Lynn Superfund Site, Houston, Harris County, Texas. Prepared by EA Engineering, Science, and Technology, Inc., PBC. January 2012.

Second Five-Year Review, Sol Lynn Superfund Site, Houston, Harris County, Texas. EPA Region 6. November 2004.

Site Status Summary, Sol Lynn Superfund Site, Houston, Harris County, Texas. EPA Region 6. July 2015.

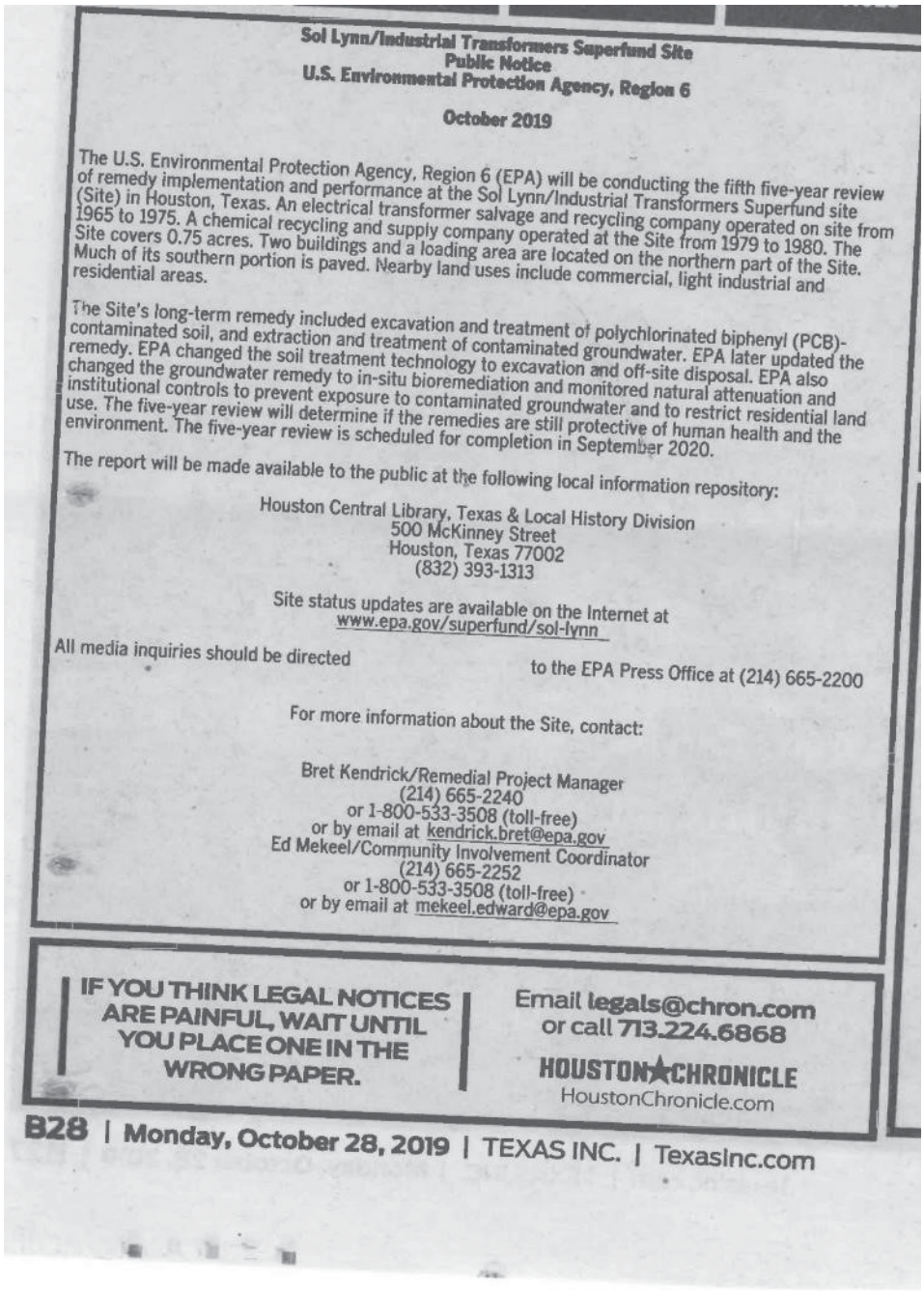
Third Five-Year Review, Sol Lynn Superfund Site, Houston, Harris County, Texas. EPA Region 6. December 2009.

APPENDIX B – SITE CHRONOLOGY

Table B-1: Site Chronology

Event	Date
The city of Houston Water Pollution Control Division conducted an investigation	September 21, 1971
TWC conducted an inspection	January 13, 1980
TWC and city of Houston Department of Health identified about 75 drums labelled TCE but empty and punctured and scattered on the Site	September 14, 1981
EPA issued the RI/FS for OU1	February 22, 1988
EPA issued the OU1 ROD	March 25, 1988
EPA issued the OU2 RI Report	July 21, 1988
EPA issued the OU2 ROD	September 23, 1988
EPA placed the Site on the NPL	May 1, 1989
EPA entered into a Consent Decree with Gulf States Utilities to clean up PCB-contaminated soils at OU1	March 8, 1990
EPA amended the OU1 ROD	September 16, 1992
Construction of the OU1 remedy completed	April 1993
EPA commenced groundwater remediation	October 8, 1993
The groundwater system was modified to pump from a third WBZ in between the uppermost and intermediate WBZs	October 12, 1994
EPA conducted investigations to further define the contaminated plume north of Interstate 610	March 1998
EPA signed Site's first FYR Report	November 23, 1999
EPA shut down the groundwater treatment system	2000
EPA issued the Supplemental RI Report for OU2	December 23, 2002
EPA issued the supplemental Feasibility Study (FS) Report for OU2	October 17, 2003
EPA issued an AROD for OU2	September 30, 2004
EPA signed Site's second FYR Report	December 9, 2004
EA Engineering, Science, and Technology performed a supplemental remedial design	November 2007
Approximately 1,500 cubic yards of soil were excavated and transported to the Houston Products Processing Corporation recycling facility in Houston, Texas	March 2009
EPA signed Site's third FYR Report	December 9, 2009
EPA demolished and recycled the former water treatment plant, conducted site cleanup, and removed debris	February 2010
EPA conducted indoor air sampling	August 2010
EPA issued Site's Final Remedial Action Report	January 2012
EPA conducted indoor air sampling	September 2015
EPA signed Site's fourth FYR Report	September 30, 2015
EPA conducted indoor air sampling	July 2017
EPA conducted indoor air sampling	August 2018
EPA conducted indoor air sampling	February 2019
EPA conducted indoor air sampling	August 2019
EPA performed maintenance on site groundwater monitoring wells and some wells were abandoned and plugged	November 2019 through February 2020

APPENDIX C – PRESS NOTICE



Sol Lynn/Industrial Transformers Superfund Site
Public Notice
U.S. Environmental Protection Agency, Region 6

October 2019

The U.S. Environmental Protection Agency, Region 6 (EPA) will be conducting the fifth five-year review of remedy implementation and performance at the Sol Lynn/Industrial Transformers Superfund site (Site) in Houston, Texas. An electrical transformer salvage and recycling company operated on site from 1965 to 1975. A chemical recycling and supply company operated at the Site from 1979 to 1980. The Site covers 0.75 acres. Two buildings and a loading area are located on the northern part of the Site. Much of its southern portion is paved. Nearby land uses include commercial, light industrial and residential areas.

The Site's long-term remedy included excavation and treatment of polychlorinated biphenyl (PCB)-contaminated soil, and extraction and treatment of contaminated groundwater. EPA later updated the remedy. EPA changed the soil treatment technology to excavation and off-site disposal. EPA also changed the groundwater remedy to in-situ bioremediation and monitored natural attenuation and institutional controls to prevent exposure to contaminated groundwater and to restrict residential land use. The five-year review will determine if the remedies are still protective of human health and the environment. The five-year review is scheduled for completion in September 2020.

The report will be made available to the public at the following local information repository:

Houston Central Library, Texas & Local History Division
500 McKinney Street
Houston, Texas 77002
(832) 393-1313

Site status updates are available on the Internet at
www.epa.gov/superfund/sol-lynn

All media inquiries should be directed to the EPA Press Office at (214) 665-2200

For more information about the Site, contact:

Bret Kendrick/Remedial Project Manager
(214) 665-2240
or 1-800-533-3508 (toll-free)
or by email at kendrick.bret@epa.gov
Ed Mekeel/Community Involvement Coordinator
(214) 665-2252
or 1-800-533-3508 (toll-free)
or by email at mekeel.edward@epa.gov

APPENDIX D – SITE INSPECTION CHECKLIST

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST

I. SITE INFORMATION

Site Name: Sol Lynn/Industrial Transformers	**Date of Inspection:** 11/07/2019
Location and Region: Houston, TX 6	**EPA ID: TXD980873327**
Agency, Office or Company Leading the Five-Year Review: EPA	**Weather/Temperature:** 70s, cloudy

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☐ Access controls
- ☒ Institutional controls
- ☒ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☒ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls
- ☒ Other: Contaminated soil was excavated and disposed of off site per the 1992 AROD. Groundwater pumping and treatment was replaced with in situ bioremediation in the 2004 OU2 AROD.

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (check all that apply)

1. **O&M Site Manager** _____ (Name) _____ (Title) _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone: _____
   Problems, suggestions ☐ Report attached: _____

2. **O&M Staff** _____ (Name) _____ (Title) _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone: _____
   Problems/suggestions ☐ Report attached: _____

3. **Local Regulatory Authorities and Response Agencies** (i.e., state and tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices). Fill in all that apply.

   Agency TCEQ
   Contact Kenan Nerad (Name) | Project Manager (Title) | _____ (Date) | 713-767-3573 (Phone No.)
   Problems/suggestions ☐ Report attached: _____

   Agency _____
   Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone No.)
   Problems/suggestions ☐ Report attached: _____

   Agency _____
   Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone No.)
   Problems/suggestions ☐ Report attached: _____

   Agency _____
   Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone No.)
   Problems/suggestions ☐ Report attached: _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone No.
Problems/suggestions ☐ Report attached:_____

4. **Other Interviews** (optional) ☐ Report attached: _____

Business Owner #1
Business Owner #2

III. ON-SITE DOCUMENTS AND RECORDS VERIFIED (check all that apply)

1. **O&M Documents**

☐ O&M manual	☐ Readily available	☐ Up to date	☒ N/A
☐ As-built drawings	☐ Readily available	☐ Up to date	☒ N/A
☐ Maintenance logs	☐ Readily available	☐ Up to date	☒ N/A

Remarks: _____

2. **Site-Specific Health and Safety Plan** ☐ Readily available ☐ Up to date ☒ N/A
☐ Contingency plan/emergency response plan ☐ Readily available ☐ Up to date ☒ N/A

Remarks: _____

3. **O&M and OSHA Training Records** ☐ Readily available ☐ Up to date ☒ N/A

Remarks: _____

4. **Permits and Service Agreements**

☐ Air discharge permit	☐ Readily available	☐ Up to date	☒ N/A
☐ Effluent discharge	☐ Readily available	☐ Up to date	☒ N/A
☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☒ N/A
☐ Other permits: _____	☐ Readily available	☐ Up to date	☒ N/A

Remarks: _____

5. **Gas Generation Records** ☐ Readily available ☐ Up to date ☒ N/A

Remarks: _____

6. **Settlement Monument Records** ☐ Readily available ☐ Up to date ☒ N/A

Remarks: _____

7. **Groundwater Monitoring Records** ☒ Readily available ☒ Up to date ☐ N/A

Remarks: _____

8. **Leachate Extraction Records** ☐ Readily available ☐ Up to date ☒ N/A

Remarks: _____

9. **Discharge Compliance Records**

☐ Air	☐ Readily available	☐ Up to date	☒ N/A
☐ Water (effluent)	☐ Readily available	☐ Up to date	☒ N/A

Remarks: _____

10. **Daily Access/Security Logs** ☐ Readily available ☐ Up to date ☒ N/A

Remarks: _____

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for state

☐ PRP in-house ☐ Contractor for PRP

☐ Federal facility in-house ☐ Contractor for Federal facility

☒ No ongoing O&M activities. EPA conducts air monitoring and EPA contractor conducts groundwater monitoring.

2. **O&M Cost Records**

☐ Readily available ☐ Up to date

☐ Funding mechanism/agreement in place ☐ Unavailable

Original O&M cost estimate: _____ ☐ Breakdown attached

Total annual cost by year for review period if available

From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached

3. **Unanticipated or Unusually High O&M Costs during Review Period**

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

A. Fencing

1. **Fencing Damaged** ☐ Location shown on site map ☐ Gates secured ☒ N/A

Remarks: _____

B. Other Access Restrictions

1. **Signs and Other Security Measures** ☐ Location shown on site map ☒ N/A

Remarks: _____

C. Institutional Controls (ICs)

1. **Implementation and Enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A

Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A

Type of monitoring (e.g., self-reporting, drive by): Self-reporting

Frequency: During monitoring events

Responsible party/agency: EPA

Contact _____ _____ _____ _____

Name Title Date Phone no.

Reporting is up to date ☐ Yes ☐ No ☒ N/A

Reports are verified by the lead agency ☐ Yes ☐ No ☒ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☒ No ☐ N/A

Violations have been reported ☐ Yes ☐ No ☒ N/A

Other problems or suggestions: ☐ Report attached

2. **Adequacy** ☐ ICs are adequate ☒ ICs are inadequate ☐ N/A

Remarks: Some institutional controls such as off-site groundwater institutional controls have not been implemented.

D. General

1. **Vandalism/Trespassing** ☐ Location shown on site map ☒ No vandalism evident

Remarks: _____

2. **Land Use Changes On Site** ☒ N/A

emarks: _____

3. **Land Use Changes Off Site** ☒ N/A

Remarks: _____

VI. GENERAL SITE CONDITIONS

A. Roads ☒ Applicable ☐ N/A

1. **Roads Damaged** ☐ Location shown on site map ☒ Roads adequate ☐ N/A

Remarks: _____

B. Other Site Conditions

Remarks: _____

VII. LANDFILL COVERS ☐ Applicable ☒ N/A

A. Landfill Surface

1. **Settlement** (low spots) ☐ Location shown on site map ☐ Settlement not evident

Area extent: _____ Depth: _____

Remarks: _____

2. **Cracks** ☐ Location shown on site map ☐ Cracking not evident

Lengths: _____ Widths: _____ Depths: _____

Remarks: _____

3.	**Erosion**	☐ Location shown on site map	☐ Erosion not evident
	Area extent: _____		Depth: _____
	Remarks: _____		
4.	**Holes**	☐ Location shown on site map	☐ Holes not evident
	Area extent: _____		Depth: _____
	Remarks: _____		
5.	**Vegetative Cover**	☐ Grass	☐ Cover properly established
	☐ No signs of stress	☐ Trees/shrubs (indicate size and locations on a diagram)	
	Remarks: _____		
6.	**Alternative Cover** (e.g., armored rock, concrete)		☐ N/A
	Remarks: _____		
7.	**Bulges**	☐ Location shown on site map	☐ Bulges not evident
	Area extent: _____		Height: _____
	Remarks: _____		
8.	**Wet Areas/Water Damage**	☐ Wet areas/water damage not evident	
	☐ Wet areas	☐ Location shown on site map	Area extent: _____
	☐ Ponding	☐ Location shown on site map	Area extent: _____
	☐ Seeps	☐ Location shown on site map	Area extent: _____
	☐ Soft subgrade	☐ Location shown on site map	Area extent: _____
	Remarks: _____		
9.	**Slope Instability**	☐ Slides	☐ Location shown on site map
	☐ No evidence of slope instability		
	Area extent: _____		
	Remarks: _____		
B. Benches		☐ Applicable	☐ N/A
	(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)		
1.	**Flows Bypass Bench**	☐ Location shown on site map	☐ N/A or okay
	Remarks: _____		
2.	**Bench Breached**	☐ Location shown on site map	☐ N/A or okay
	Remarks: _____		
3.	**Bench Overtopped**	☐ Location shown on site map	☐ N/A or okay
	Remarks: _____		
C. Letdown Channels		☐ Applicable	☐ N/A
	(Channel lined with erosion control mats, riprap, grout bags or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)		

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ No evidence of settlement
Area extent: _____ Depth: _____
Remarks: _____

2. **Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation
Material type:_____ Area extent: _____
Remarks: _____

3. **Erosion** ☐ Location shown on site map ☐ No evidence of erosion
Area extent: _____ Depth: _____
Remarks: _____

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
Area extent: _____ Depth: _____
Remarks: _____

5. **Obstructions** Type: _____ ☐ No obstructions
☐ Location shown on site map Area extent: _____
Size: _____
Remarks: _____

6. **Excessive Vegetative Growth** Type: _____
☐ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Area extent: _____
Remarks: _____

D. Cover Penetrations ☐ Applicable ☐ N/A

1. **Gas Vents** ☐ Active ☐ Passive
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A
Remarks: _____

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A
Remarks: _____

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A
Remarks: _____

4. **Extraction Wells Leachate**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A

Remarks: _____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A

Remarks: _____

E. Gas Collection and Treatment ☐ Applicable ☐ N/A

1. **Gas Treatment Facilities**

☐ Flaring ☐ Thermal destruction ☐ Collection for reuse

☐ Good condition ☐ Needs maintenance

Remarks: _____

2. **Gas Collection Wells, Manifolds and Piping**

☐ Good condition ☐ Needs maintenance

Remarks: _____

3. **Gas Monitoring Facilities** (e.g., gas monitoring of adjacent homes or buildings)

☐ Good condition ☐ Needs maintenance ☐ N/A

Remarks: _____

F. Cover Drainage Layer ☐ Applicable ☐ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A

Remarks: _____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A

Remarks: _____

G. Detention/Sedimentation Ponds ☐ Applicable ☐ N/A

1. **Siltation** Area extent: _____ Depth: _____ ☐ N/A

☐ Siltation not evident

Remarks: _____

2. **Erosion** Area extent: _____ Depth: _____

☐ Erosion not evident

Remarks: _____

3. **Outlet Works** ☐ Functioning ☐ N/A

Remarks: _____

4. **Dam** ☐ Functioning ☐ N/A

Remarks: _____

H. Retaining Walls ☐ Applicable ☐ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident

Horizontal displacement: _____ Vertical displacement: _____

Rotational displacement: _____

Remarks: _____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident

Remarks: _____

I. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident

Area extent: _____ Depth: _____

Remarks: _____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A

☐ Vegetation does not impede flow

Area extent: _____ Type: _____

Remarks: _____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident

Area extent: _____ Depth: _____

Remarks: _____

4. **Discharge Structure** ☐ Functioning ☐ N/A

Remarks: _____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident

Area extent: _____ Depth: _____

Remarks: _____

2. **Performance Monitoring** Type of monitoring: _____

☐ Performance not monitored

Frequency: _____ ☐ Evidence of breaching

Head differential: _____

Remarks: _____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☒ Applicable ☐ N/A

A. Groundwater Extraction Wells, Pumps and Pipelines ☐ Applicable ☒ N/A

1. **Pumps, Wellhead Plumbing and Electrical**

☐ Good condition ☐ All required wells properly operating ☐ Needs maintenance ☐ N/A

Remarks: _____

2. **Extraction System Pipelines, Valves, Valve Boxes and Other Appurtenances**

☐ Good condition ☐ Needs maintenance

Remarks: _____

3. **Spare Parts and Equipment**

☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided

Remarks: _____

B. Surface Water Collection Structures, Pumps and Pipelines ☐ Applicable ☒ N/A

1. **Collection Structures, Pumps and Electrical**

☐ Good condition ☐ Needs maintenance

Remarks: _____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes and Other Appurtenances**

☐ Good condition ☐ Needs maintenance

Remarks: _____

3. **Spare Parts and Equipment**

☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided

Remarks: _____

C. Treatment System ☐ Applicable ☒ N/A

1. **Treatment Train** (check components that apply)

☐ Metals removal ☐ Oil/water separation ☐ Bioremediation

☐ Air stripping ☐ Carbon adsorbers

☐ Filters: _____

☐ Additive (e.g., chelation agent, flocculent): _____

☐ Others: _____

☐ Good condition ☐ Needs maintenance

☐ Sampling ports properly marked and functional

☐ Sampling/maintenance log displayed and up to date

☐ Equipment properly identified

☐ Quantity of groundwater treated annually: _____

☐ Quantity of surface water treated annually: _____

Remarks: _____

2. **Electrical Enclosures and Panels** (properly rated and functional)

☐ N/A ☐ Good condition ☐ Needs maintenance

Remarks: _____

3. **Tanks, Vaults, Storage Vessels**

☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs maintenance

Remarks: _____

4. **Discharge Structure and Appurtenances**

☐ N/A ☐ Good condition ☐ Needs maintenance

Remarks: _____

5. **Treatment Building(s)**

☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair

☐ Chemicals and equipment properly stored

Remarks: _____

6. **Monitoring Wells** (pump and treatment remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ All required wells located ☐ Needs maintenance ☐ N/A

Remarks: _____

D. Monitoring Data

1. **Monitoring Data**

☐ Is routinely submitted on time ☒ Is of acceptable quality

2. **Monitoring Data Suggests:**

☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

E. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ All required wells located ☒ Needs maintenance ☐ N/A

Remarks: Many wells were observed in poor condition or damaged beyond repair. A field event occurred in November 2019 through February 2020 to abandon, repair or redevelop damaged wells.

X. OTHER REMEDIES

If there are remedies applied at the site and not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is designed to accomplish (e.g., to contain contaminant plume, minimize infiltration and gas emissions).

The current remedy consists of contaminated soil excavation and off-site disposal and in situ bioremediation of the shallow groundwater zones. The in situ bioremediation was conducted in 2010 and monitoring data from 2011 and 2018 indicate a decrease in TCE concentrations at some wells and some zones. However, concentrations remain several orders of magnitude over the cleanup goals and some wells and zones are showing an increase in concentrations of TCE. A remedy optimization study should be conducted to determine if the current remedy is operating as intended or if a supplemental remedy is needed to attain RAOs.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

O&M activities are not occurring at the Site. An O&M Plan should be implemented for monitoring well maintenance.

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.

None.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

None.

APPENDIX E – REMEDIAL ACTION AND SITE INSPECTION PHOTOS

BEFORE – Pre-soil remedial action (1989)

AFTER – Site Inspection Photos: November 2019

Western half of the Site, facing west, OU1 soil excavation area

Eastern half of the Site and Mansard Street

MW-01 with cracked well pad

SZER-01 with missing manhole cover

On-site well with missing steel lid and cracked well pad

Monitoring wells and some recovery wells from previously operated groundwater treatment system, with businesses in background

Closed business at 1419 S. Loop West

Area of the former groundwater treatment plant

Well series located across Interstate 610 from the Site

APPENDIX F – DATA REVIEW TABLES AND MAPS

Table F-1: 2010, 2015, 2017 Indoor Air Sampling Results[4]

Table 4 Summary of 2010, 2015, and 2017 Indoor Air Sampling Results

Sample Location Address	Business Name	Sample Identification	Type	Date	PCE µg/m³	TCE µg/m³	1,1-DCE µg/m³	trans-1,2-DCE µg/m³	cis-1,2-DCE µg/m³	Vinyl Chloride µg/m³
				RSL TR*	47	3.0	NS	NS	NS	2.8
				RSL THI*	180	8.8	876	NS	NS	440
[redacted]	[redacted]	VI-01	Normal	8/4/2010	<0.68	<0.54	<0.40	<0.40	<0.40	<0.26
[redacted]	[redacted]	VI-01	Normal	9/9/2015	**1.09**	<0.27	<0.20	<0.20	<0.20	<0.13
[redacted]	[redacted]	VI-01	Normal	7/12/2017	<6.80	<0.54	<0.40	<0.40	<0.40	<0.26
[redacted]	[redacted]	VI-02	Normal	8/4/2010	**0.82**	<0.54	<0.40	<0.40	**3.18**	**1.13**
[redacted]	[redacted]	VI-02	Normal	9/9/2015	<0.34	**0.32**	<0.20	<0.20	**15.3**	***39.5***
[redacted]	[redacted]	VI-02A	Normal	9/9/2015	**0.75**	**0.48**	**0.40**	**0.32**	**0.36**	**0.20**
[redacted]	[redacted]	VI-02	Normal	7/12/2017	<6.80	<0.54	<0.40	<0.40	**29.1**	***58.7***
[redacted]	[redacted]	VI-03	Normal	8/4/2010	<0.68	<054	<0.40	<0.40	<0.40	<0.26
[redacted]	[redacted]	VI-03	Normal	9/9/2015	<0.34	<0.27	<0.20	<0.20	<0.20	<0.13
[redacted]	[redacted]	VI-03	Normal	7/12/2017	<6.80	<054	<0.40	<0.40	<0.40	**0.54**
[redacted]	[redacted]	VI-08	Normal	8/4/2010	<0.68	<0.54	<0.40	<0.40	<0.40	<0.26
[redacted]	[redacted]	VI-08	Normal	9/9/2015	<0.34	**0.32**	<0.20	<0.20	**14.8**	***39.2***
[redacted]	[redacted]	VI-08	Normal	7/12/2017	<6.80	<0.54	<0.40	<0.40	<0.40	<0.26
[redacted]	[redacted]	VI-08 DUP	Duplicate	7/12/2017	<6.80	<0.54	<0.40	<0.40	<0.40	<0.26
[redacted]	[redacted]	VI-09	Normal	7/12/2017	<6.80	<0.54	<0.40	<0.40	**0.44**	<0.26
[redacted]	[redacted]	VI-10	Normal	7/12/2017	<6.80	<0.54	<0.40	<0.40	<0.40	<0.26
[redacted]	[redacted]	VI-11	Normal	7/12/2017	<6.80	<0.54	<0.40	<0.40	<0.40	<0.26
[redacted]	[redacted]	VI-12	Normal	7/12/2017	<6.80	<0.54	<0.40	<0.40	<0.40	<0.26
[redacted]	[redacted]	VI-04	Normal	8/4/2010	<0.68	<0.54	<0.40	<0.40	**1.15**	**2.56**
[redacted]	[redacted]	VI-05	Normal	8/3/2010	<0.68	<0.54	<0.40	<0.40	**1.87**	***7.89***
[redacted]	[redacted]	VI-05 DUP	Duplicate	8/3/2010	<0.68	**2.80**	<0.40	<0.40	**1.99**	***7.68***
[redacted]	[redacted]	VI-04	Normal	9/9/2015	<0.34	<0.27	<0.20	**0.24**	**23.2**	***39.0***
[redacted]	[redacted]	VI-05	Normal	9/9/2015	<0.34	<0.27	<0.20	**0.48**	**45**	***74.8***
[redacted]	[redacted]	VI-05 Dup	Duplicate	9/9/2015	<0.34	<0.27	<0.20	<0.20	**9.89**	***16.2***
2191 Mansard	Former Waste Water Treatment Area	VI-06 BKG	Background	8/5/2010	<0.68	<0.54	<0.40	<0.40	<0.40	<0.26
2191 Mansard	Former Waste Water Treatment Area	VI-06 BKG	Background	9/9/2015	<0.34	<0.27	<0.20	<0.20	<0.20	<0.13
2191 Mansard	Former Waste Water Treatment Area	VI-08A	Background	7/12/2017	<6.80	<0.54	<0.40	<0.40	<0.40	<0.26
	Trip Blank	VI-07 TRIP	Trip Blank	08/03/2010	<0.68	<0.54	<0.40	<0.40	<0.40	<0.26
	Trip Blank	VI-07 TRIP	Trip Blank	9/9/2015	<0.34	<0.27	<0.20	<0.20	<0.20	**0.15**
	Trip Blank	VI-07 TRIP	Trip Blank	7/12/2017	<6.80	<0.54	<0.40	<0.40	<0.40	<0.26

NOTES:

* Environmental Protection Agency (EPA) Regional Screening Levels Summary Table for Composite Worker Ambient Air Table (Carninogenic Target Risk = 1E-6, Hazard Index =1) June 2017. https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-june-2017

Bolded black values indicate concentrations above laboratory detection limit

Bolded italized red values indicate concentrations above RBSLs

< = Less than laboratory detection limit

DCE = Dichloroethylene

NS = No standard

PCE = Perchloroethylene (tetrachloroethylene)

RSL = Regional Screening Level

TCE = Trichloroethylene

THI = Target Hazard Index (non-cancer)

TR = Target Cancer Risk

µg/m3 = Micrograms per cubic meter

August 2010 Sampling Event

September 2015 Sampling Event

July 2017 Sampling Event

Regional Screening Level

[4] Source: 2017 GW Gauging and Indoor Air Sampling

Table F-2: August 2018 Indoor Air Sampling Results[5]

Analyte (Compound)	EPA RSL (µg/m³)	TCEQ RBEL (µg/m³)	Sample Number and Analytical Result (µg/m³)					
			VI-02	VI-02 DUP	VI-04	VI-06 BKG	VI-07 (Trip Blank)	VI-14
1,1-Dichloroethene	880	500	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	--	88	7.41	7.80	0.74	1.22	ND	ND
trans-1,2-Dichloroethene	--	88	ND	0.57	ND	ND	ND	ND
Tetrachloroethene	47	110	ND	ND	1.61	9.94	ND	ND
Trichloroethene	3.0	2.9	0.95	1.39	3.00	2.47	ND	0.93
Vinyl Chloride	2.8	4.9	17.1 J	16.4 J	8.83 J	ND	ND	1.16 J

EPA - Environmental Protection Agency
TCEQ - Texas Commission on Environmental Quality
RSL - Regional Screening Level (industrial settings)
RBEL - Risk-Based Exposure Level (commercial settings)
µg/m³ - micrograms per cubic meter
-- - Screening/exposure level not established
ND - Not Detected
J - Reported value is estimated

[5] Source: Indoor Air Sampling Report, November 30, 2018

Table F-3: February 2019 Indoor Air Sampling Results[6]

Analyte (Compound)	EPA RSL (µg/m³)	TCEQ RBEL (µg/m³)	Sample Number and Analytical Result* (µg/m³)					
			VI-02	VI-02 DUP	VI-04	VI-06 BKG	VI-07 (Trip Blank)	VI-14
1,1-Dichloroethene	880	500	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	--	88	12.3	12.4	1.59	ND	ND	ND
trans-1,2-Dichloroethene	--	88	ND	ND	ND	ND	ND	ND
Tetrachloroethene	47	110	ND	3.94	ND	ND	ND	ND
Trichloroethene	3.0	2.9	ND	0.54	ND	ND	ND	ND
Vinyl Chloride	2.8	4.9	28.6	28.9	19.8	ND	ND	ND

EPA - Environmental Protection Agency
TCEQ - Texas Commission on Environmental Quality
RSL - Regional Screening Level (industrial settings)
RBEL - Risk-Based Exposure Level (commercial settings)
µg/m³ - micrograms per cubic meter
-- - Screening/exposure level not established
ND - Not Detected

* Samples collected on February 6, 2019.

[6] Source: Indoor Air Sampling Report, March 28, 2019

Table F-4: August 2019 Indoor Air Sampling Results[7]

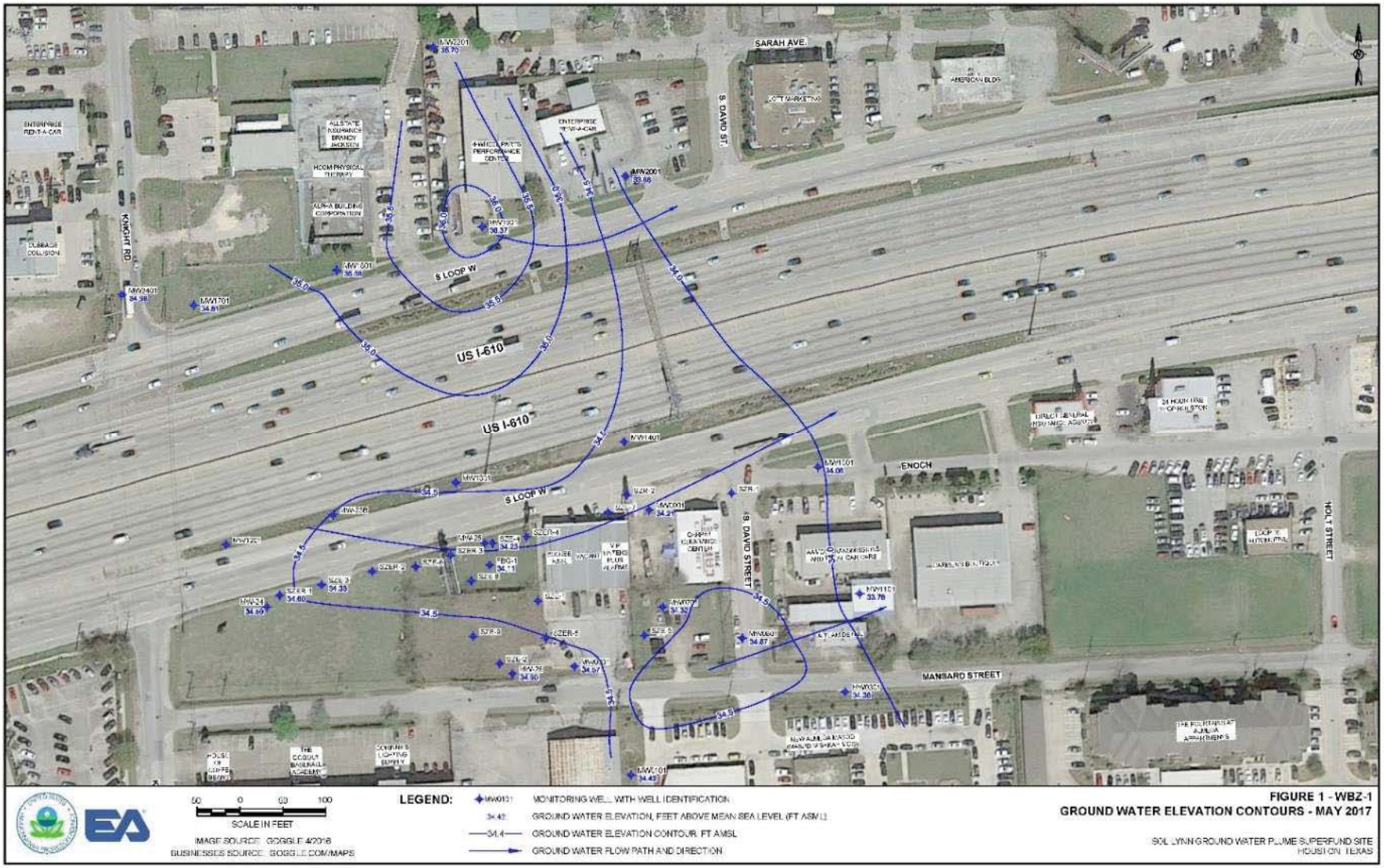
Analyte (Compound)	EPA RSL (µg/m³)	TCEQ RBEL (µg/m³)	Sample Number and Analytical Result* (µg/m³)					
			VI-02	VI-02 DUP	VI-04	VI-06 BKG	VI-07 (Trip Blank)	VI-14
1,1-Dichloroethene	880	500	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	--	88	15.1	15.4	4.29	ND	ND	0.56
trans-1,2-Dichloroethene	--	88	ND	ND	ND	ND	ND	ND
Tetrachloroethene	47	110	0.68	ND	ND	4.01	ND	ND
Trichloroethene	3.0	2.9	ND	ND	ND	0.54	ND	ND
Vinyl Chloride	2.8	4.9	19.3	19.4	5.89	ND	ND	0.74

EPA - Environmental Protection Agency
TCEQ - Texas Commission on Environmental Quality
RSL - Regional Screening Level (industrial settings)
RBEL - Risk-Based Exposure Level (commercial settings)
µg/m³ - micrograms per cubic meter
-- - Screening/exposure level not established
ND - Not Detected

* Samples collected on August 21, 2019.

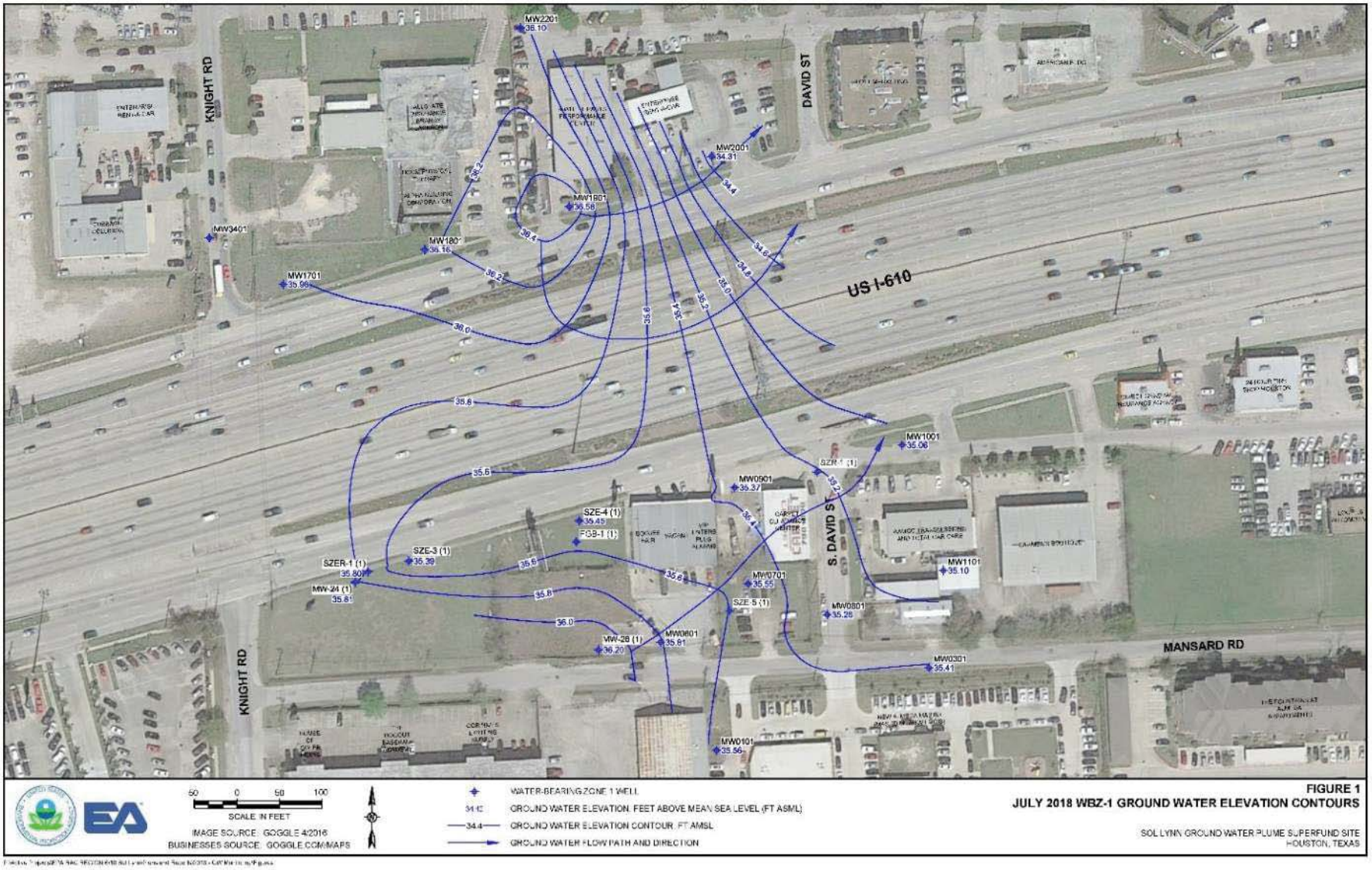
[7] Source: Indoor Air Sampling Report, October 10, 2019

Figure F-1: 2017 WBZ-1 Potentiometric Surface Map[8]



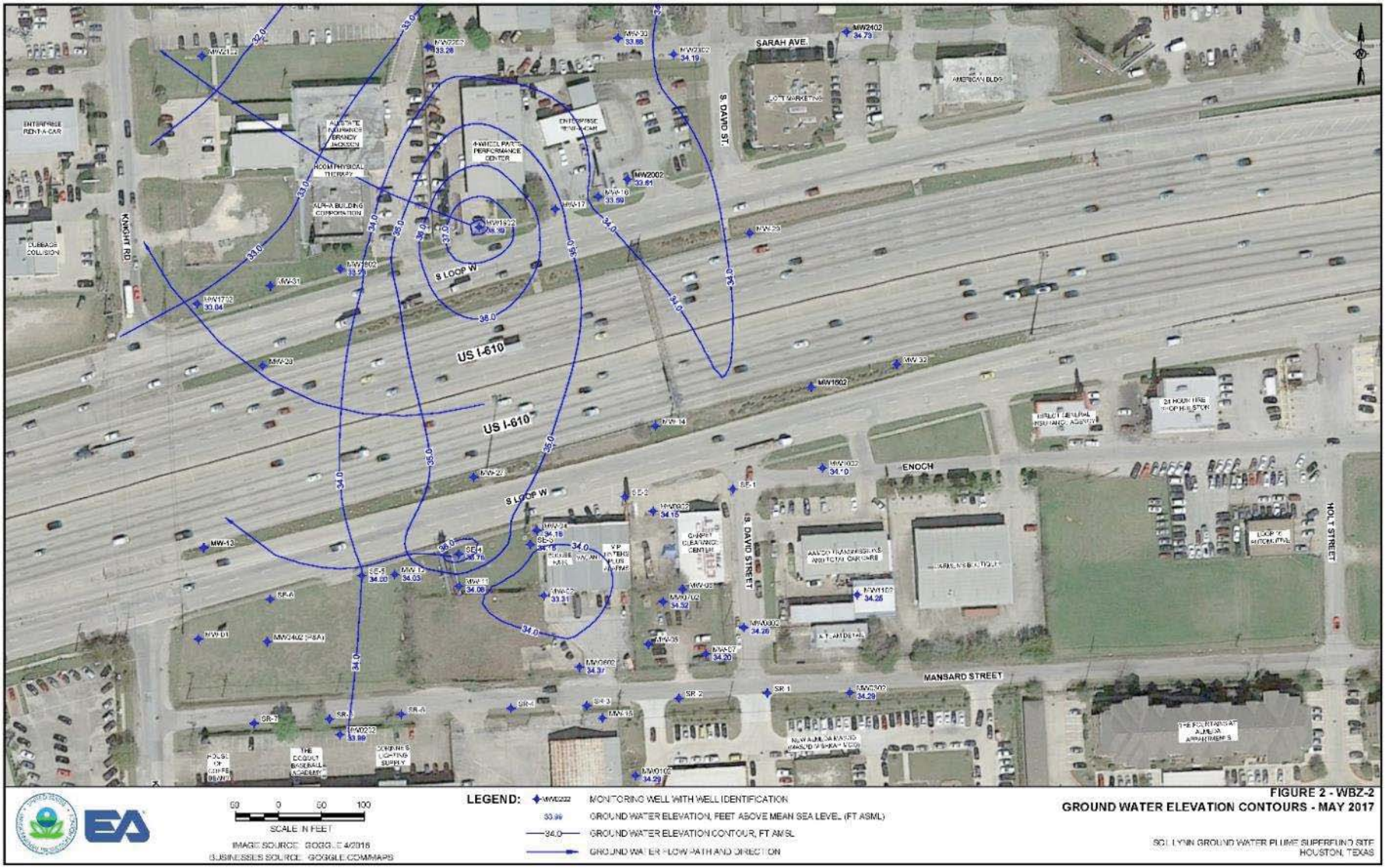
[8] Source: 2017 GW Gauging and Indoor Air Sampling

Figure F-2: 2018 WBZ-1 Potentiometric Surface Map[9]



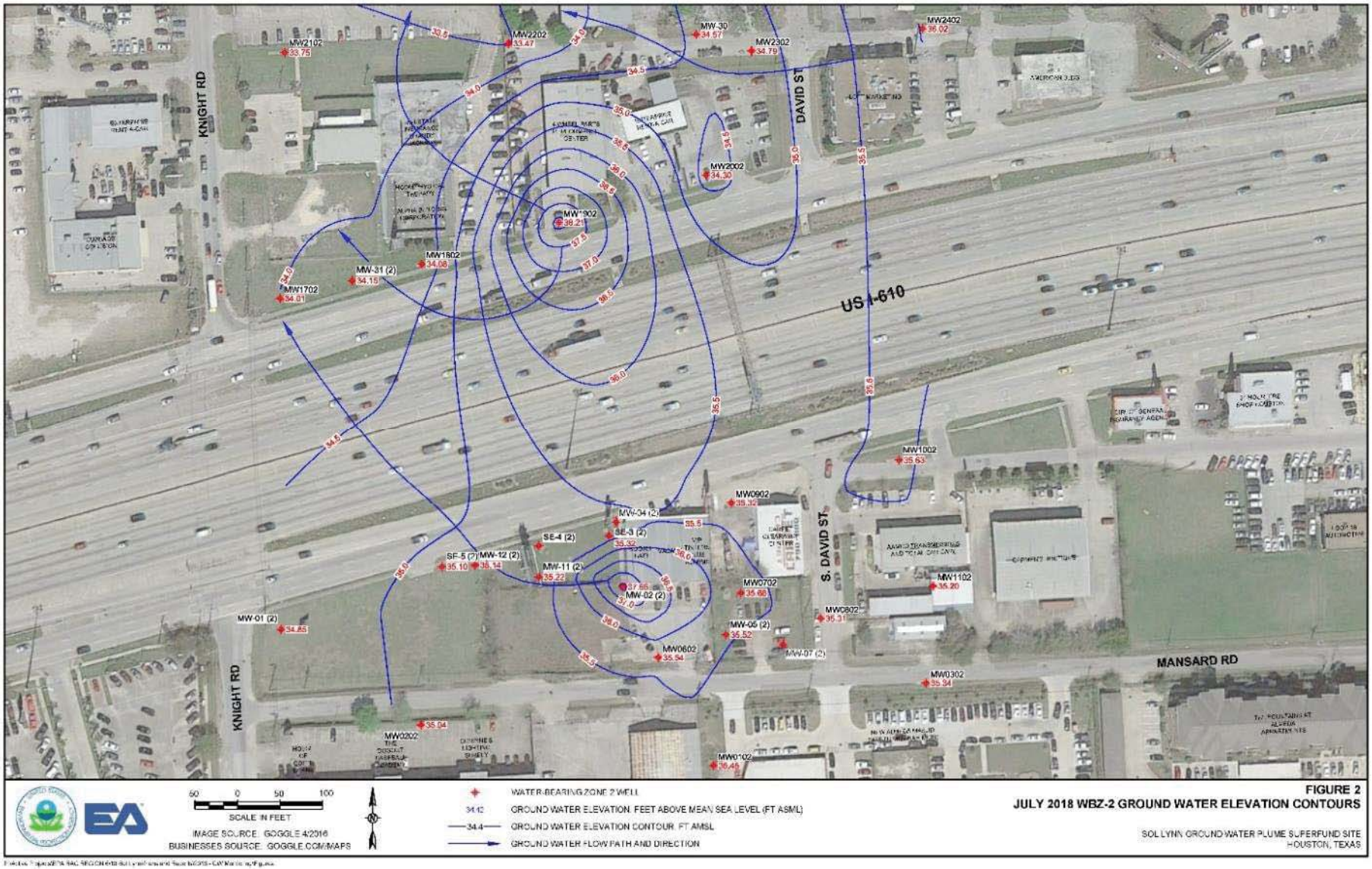
[9] Source: 2018 Ground Water Sampling Event

Figure F-3: 2017 WBZ-2 Potentiometric Surface Map[10]



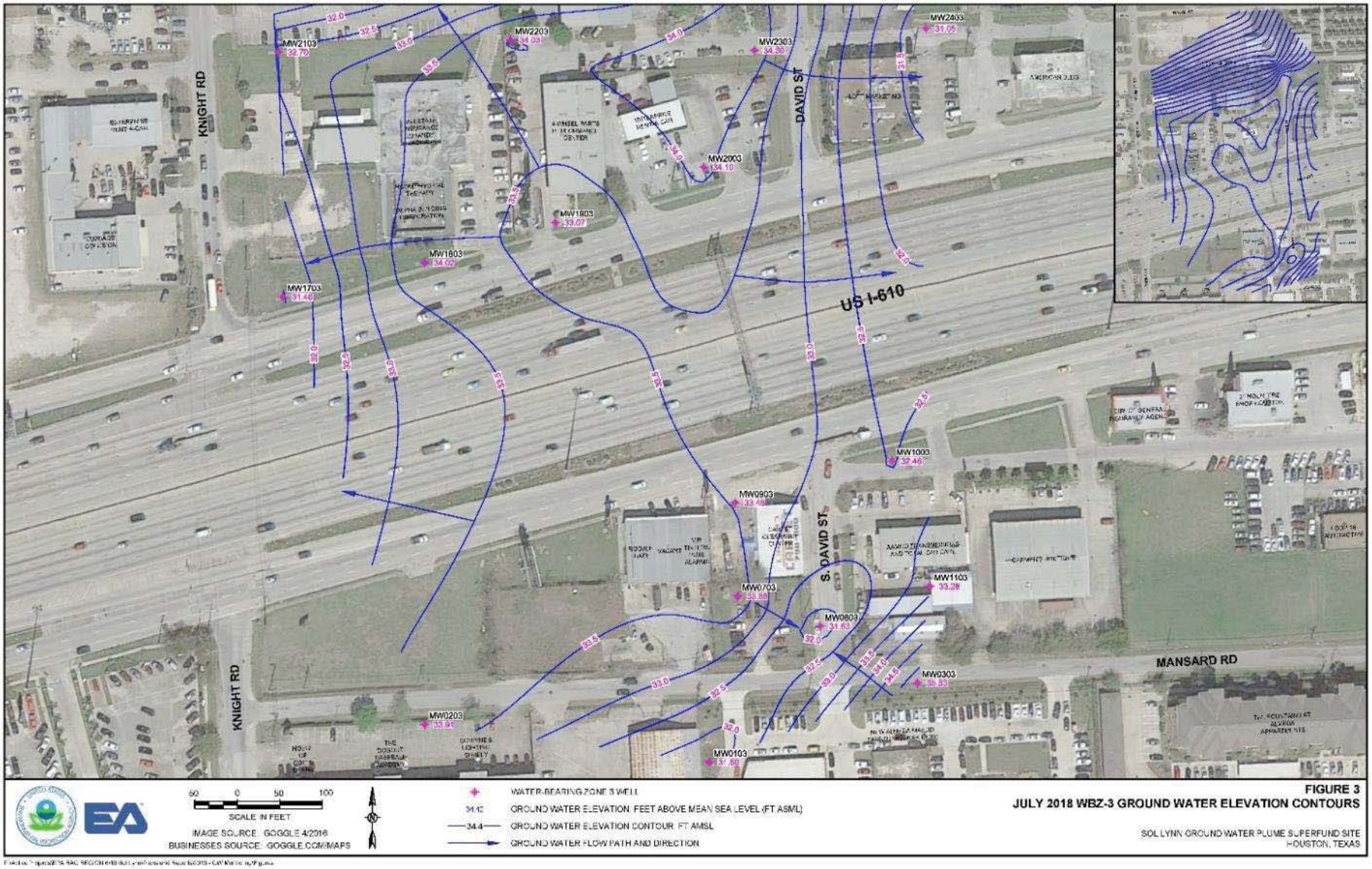
[10] Source: 2017 GW Gauging and Indoor Air Sampling

Figure F-4: 2018 WBZ-2 Potentiometric Surface Map[11]



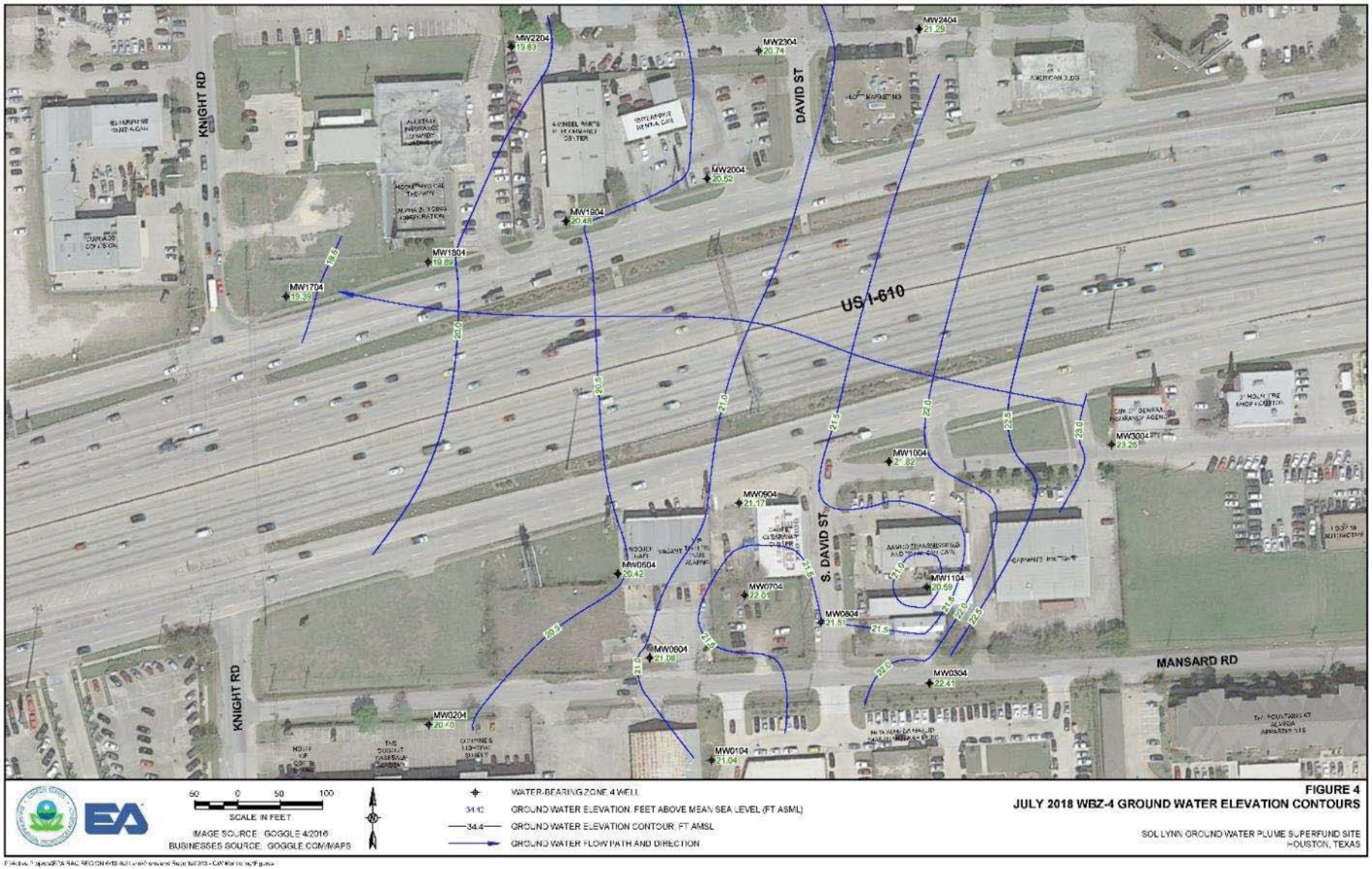
[11] Source: 2018 Ground Water Sampling Event

Figure F-5: 2018 WBZ-3 Potentiometric Surface Map[12]



[12] Source: 2018 Ground Water Sampling Event

Figure F-6: 2018 WBZ-4 Potentiometric Surface Map[13]



[13] Source: 2018 Ground Water Sampling Event

APPENDIX G – VAPOR INTRUSION RISK EVALUATION

Table G-1: Vapor Intrusion Risk Review

Detected Constituents in Indoor Air	Maximum Detected Concentration (2010-2019) (µg/m³)	Composite Worker Air RSL[a] (µg/m³)		Screening-level Risk Evaluation	
		10^{-6} Risk	HQ = 1	Risk[b]	HQ[c]
PCE	9.94	47	180	2×10^{-7}	0.1
TCE	3.00	3	8.8	1×10^{-6}	0.3
1,1-DCE	0.40	--	880	--	0.0005
trans-1,2-DCE	0.57	--	--	--	--
cis-1,2-DCE	45	--	--	--	--
Vinyl chloride	74.8	2.8	440	3×10^{-5}	0.2
			Totals	3×10^{-5}	0.6

Notes:
-- = EPA has not finalized toxicity values for this compound.
a. EPA tapwater RSLs, dated November 2019, are available at https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables (accessed December 31, 2019).
b. Risk calculated using the following equation, based on the fact that RSLs are derived based on 1×10^{-6} risk: risk = (detected concentration / cancer-based RSL) x 10^{-6}.
c. Noncancer HQ calculated using the following equation: HQ = detected concentration / noncancer-based RSL.

Table G-2: Vapor Intrusion Screening Level Risk Review – Groundwater Contamination in WBZ-1

Detected Constituents in Groundwater	Maximum Detected Concentration (2018) (µg/L)	Predicted Indoor Air Concentration (µg/m³)	Screening-level Risk Evaluation Residential Use	
			Cancer Risk	Non-cancer HQ
MW0301 (Downgradient WBZ-1)				
cis-1,2-DCE	129	NA	NA	NA
Vinyl chloride	9,970	11,300	**6.5×10^{-2}**	**109**

Notes:
a. Risk and hazard quotient calculated using EPA's November 2019 VISL calculator (https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-level-calculator) assuming a residential exposure and default groundwater temperature of 25 degrees Celsius.
µg/L = micrograms per liter
NA = Not applicable

APPENDIX H – INTERVIEW FORMS

Sol Lynn/Industrial Transformers SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Sol Lynn/Industrial Transformers	
EPA ID: TXD980873327	
Interviewer name: Treat Suomi	**Interviewer affiliation: Skeo**
Subject name: Business Owner #1	**Subject affiliation:**
Subject contact information:	
Interview date: 11/7/2019	**Interview time: 10:00 A.M.**
Interview location: Site property	
Interview format (circle one): (In Person) Phone Mail Email Other:	
Interview category: Resident/Tennant/local business	

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?
   Yes, very limited knowledge. I have only owned the property for a year and was notified prior to purchasing.

2. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?
   My knowledge is based on dealing with EPA and regular communication with the RPM.

   a. Can you think of anything EPA could have done during the cleanup to better communicate if there were any risks associated with the Site (as appropriate, if individual was present during cleanup)?
      No.
      i. Do you remember how you'd hear about the risks posed by the Site during cleanup? Would there have been a better way to hear about them?
         Not applicable.
   b. How do you learn about what's happening at the Site now?
      Through RPM, get regular reports.
   c. Do you feel like you understand how the cleanup has made the property/site safe?
      No, I do not understand. I know it occurs over a period of time.
   d. Do you feel like EPA does a good job explaining the difference between whether there are risks to people and whether the cleanup is working well?
      Yes.
   e. Would there be a better way for EPA to communicate information about the site after the cleanup is in place, especially during the Five-Year Review process? For example, did you see the notice in the paper? Do you know of anyone who did?
      No.

3. What have been the effects of the Site on the surrounding community, if any?
   None.

4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?
   Nothing out of the ordinary or related to the environmental activities at the Site.

5. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?
   Yes, EPA has kept people updated and nothing to do differently.

6. Do you own a private well in addition to or instead of accessing city/municipal water supplies? If so, for what purpose(s) is your private well used?
   No.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?
   No.

Sol Lynn/Industrial Transformers SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Sol Lynn/Industrial Transformers	
EPA ID: TXD980873327	
Interviewer name: Treat Suomi	**Interviewer affiliation: Skeo**
Subject name: Business Owner #2	**Subject affiliation:**
Subject contact information:	
Interview date: 11/7/2019	**Interview time:1:30 P.M.**
Interview location: Nearby business	
Interview format (circle one): (In Person) Phone Mail Email Other:	
Interview category: Resident/Tennant/local business	

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?
   Yes, we own part of the Site. We used to own about 60 acres and EPA installed monitoring wells off of Maynard Street. We sold the property with access road that is used for monitoring. We assume that EPA is still monitoring groundwater.

2. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?
   EPA is doing what they are supposed to be doing as far as we know.
   a. Can you think of anything EPA could have done during the cleanup to better communicate if there were any risks associated with the site (as appropriate, if individual was present during cleanup)?
      Not to my knowledge, EPA has stayed in touch.
      i. Do you remember how you'd hear about the risks posed by the Site during cleanup? Would there have been a better way to hear about them?
         Mail, letters, website was also used.
   b. How do you learn about what's happening at the Site now?
      Periodic communication from EPA.
   c. Do you feel like you understand how the cleanup has made the property/site safe?
      Yes.
   d. Do you feel like EPA does a good job explaining the difference between whether there are risks to people and whether the cleanup is working well?.
      Yes.
   e. Would there be a better way for EPA to communicate information about the site after the cleanup is in place, especially during the Five-Year Review process? For example, did you see the notice in the paper? Do you know of anyone who did?
      Email would be good. Do not recall seeing the newspaper notice.

3. What have been the effects of the Site on the surrounding community, if any?

We have a piece of property that we can't do anything with because all of the property is shown as part of the Superfund site. We don't want to deal with leasing it due to contamination. We feel the property is undervalued due to being a Superfund site.

4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

Yes, trespassing is a concern. We have put up signs and wood barriers at the access points to stop people from driving across the Site.

5. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?
   Can't speak for neighbors, but EPA has kept us informed.

6. Do you own a private well in addition to or instead of accessing city/municipal water supplies? If so, for what purpose(s) is your private well used?
   We do not, it is illegal to have private wells in Houston.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?
   No.

Sol Lynn/Industrial Transformers SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Sol Lynn/Industrial Transformers	
EPA ID: TXD980873327	
Interviewer name:	**Interviewer affiliation:**
Subject name: Kenan Nerad	**Subject affiliation: TCEQ**
Subject contact information: kenan.nerad@tceq.texas.gov | 713-767-3573	
Interview date:	**Interview time:**
Interview location:	
Interview format (circle one): In Person Phone Mail (Email) Other:	
Interview category: State Agency	

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

   Cleanup activities were appropriate for the soil contamination (OU1). However, remedial action of OU2 does not appear to be functioning as it was intended and it needs an optimization review. Maintenance of the Site has been poor. The EPA has secured funding to plug and abandon some wells and repair and recover critical wells and this work should be implemented as soon as possible. Reuse activities may be appropriate.

2. What is your assessment of the current performance of the remedy in place at the Site?

   Based on the 2018 groundwater sampling results, the in-situ bioremediation treatment initiated in 2010 is not working as intended. There was some reduction in COC levels in WBZ-1, but COCs are still much higher than MCLs. There was minimal reduction of COC levels in WBZ 2-4.

3. Are you aware of any complaints or inquiries regarding site-related environmental issues or remedial activities from residents in the past five years?

   I am not.

4. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

   To my knowledge, the only activities TCEQ has directly taken with the Site in the past five years is submitting comments to EPA about the December 2018 Groundwater Sampling Technical Memorandum, the November 2018 Indoor Air Sampling Draft and the March 2019 Indoor Air Sampling Report.

5. Are you aware of any changes to state laws that might affect the protectiveness of the Site's remedy?

   I am not.

6. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues?

   No, according to the last FYR Report, additional institutional controls are needed on adjoining tracts and parcels.

7. Are you aware of any changes in projected land use(s) at the Site?

   No. During the interviews, both property owners expressed interest in developing the land which they own, but such developments would be for continued commercial use.

8. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

   The EPA should conduct additional groundwater monitoring to fully delineate the groundwater contamination and perform an optimization review of the groundwater remedy.

9. Do you consent to have your name included along with your responses to this questionnaire in the FYR Report?

   Yes.

APPENDIX I – WELL SEARCH RESULTS

Table I-1: 1-Mile Well Search Results

Well ID	Use	Owner	Date Drilled	Total Depth
1626	Industrial	Dresser Magcobar-Almeda Plant	1956	542
2786	Industrial	International Tool & Supply Co.	1966	540
2787	Industrial	International Tool & Supply Co.	1962	468
2807	Industrial	Texaco, Inc.	1967	289
2992	Industrial	Exxon Company, U.S.A.	1981	unknown
3174	Industrial	International Tool & Supply Co.	1989	unknown
3223[a]	Industrial	Southwestern Bell Telephone Co.	1968	unknown
3429	Public Supply	Exxon Corporation	1979	77
3928	Industrial	International Tool & Supply Co.	1981	unknown
5013[a]	Other	Holly Hall Retirement Community	1989	400
5251	Other	Six Flags Astroworld Houston	1992	324
5774	Other	Sueba Business Park	1996	500
9011	Other	San Melia	2002	450
9851[a]	Other	Holly Hall Retirement Community	2004	440
12858[b]	Domestic	Private	unknown	420
112824	Domestic	Women Hospital of Texas	2007	510
173013[a]	Irrigation	Holly Hall Retirement Center	2004	420
6521601	Industrial	Black-Broillier Co.	unknown	329
6521611	Industrial	Magcobar Mud Co.	unknown	542
6521614	Industrial	Metal Arts Co.	unknown	468
6521615	Industrial	Metal Arts Co.	unknown	540
6521616	Industrial	Star-Tex Oil Co.	unknown	292
6521617	Industrial	Signal Oil Co.	unknown	290
6521619	Industrial	Texaco Inc.	unknown	289
6521620	Domestic	Harris County Flood	unknown	432
1013142	Public Supply G1013142A	MD Anderson Cancer Center Knight R	unknown	unknown

Notes:
Well search conducted in 2017 by TCEQ
a. Located within the 0.25-mile plume buffer
b. Located within the 0.25 miles of the site center

Figure I-1: 1-Mile Well Search Results Map

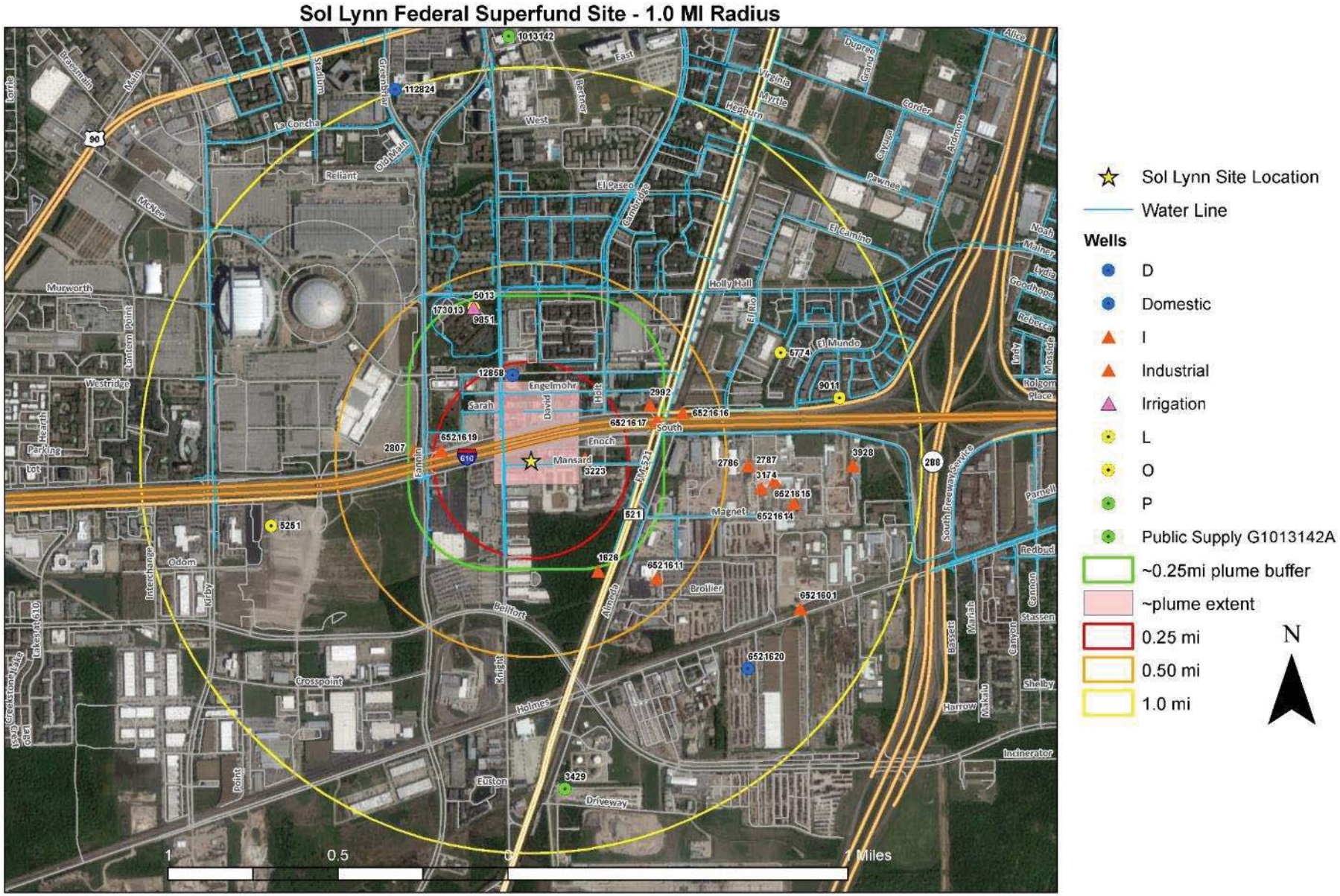
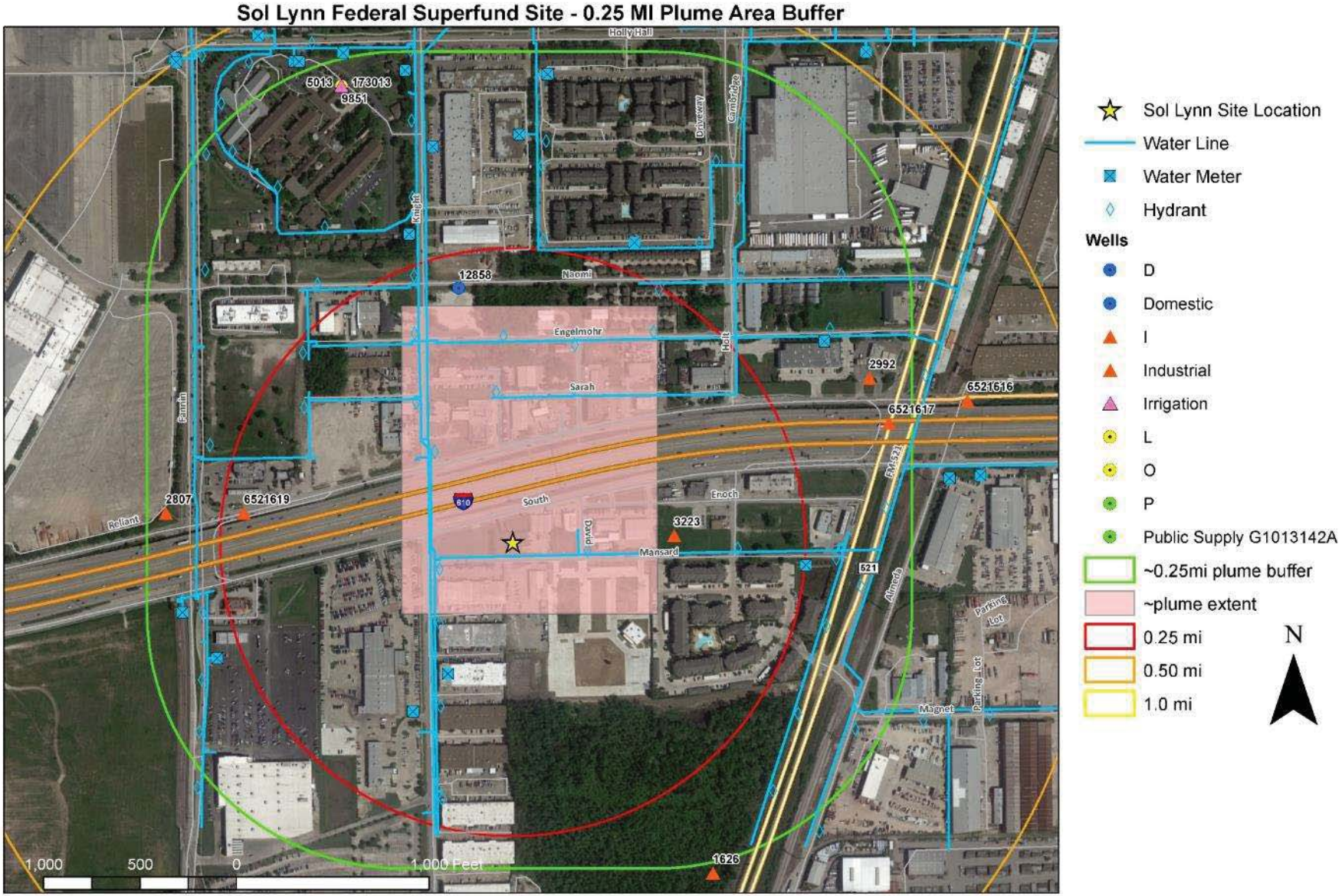


Figure I-2: 0.25-Mile Well Search Results Map



APPENDIX J – RESTRICTIVE COVENANT

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6

IN THE MATTER OF:	§	AGREEMENT AND COVENANT
	§	NOT TO SUE: RE INDUSTRIAL
DISCOUNT COMMUNICATIONS, INC.	§	TRANSFORMER/SOL LYNN
	§	SUPERFUND SITE LOCATED IN
Under authority of the	§	HOUSTON, TEXAS
Response, Compensation, and	§	
Liability Act, as amended,	§	CERCLA DOCKET NO. 6-15-93
42 U.S.C. § 9601 et seq.	§	

AGREEMENT AND COVENANT NOT TO SUE

I. PURPOSE OF THIS AGREEMENT

1. WHEREAS, this Agreement and Covenant Not to Sue ("Agreement") is made and entered into by the United States Environmental Protection Agency ("EPA") and Discount Communications, Inc. ("DCI") (hereinafter referred to as "Settling Party").

2. WHEREAS, this Agreement is entered into by EPA pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. § 9601 et seq. ("CERCLA") and is in accordance with current EPA guidance.

3. WHEREAS, DCI, a Texas corporation, is currently a lessee of the Sol Lynn Property, as described in Appendix A1 of this Agreement, (hereinafter referred to as the "Sol Lynn Property") which is located within the Industrial Transformer/Sol Lynn Superfund Site ("Site") in Houston, Texas. Larry Feingersh is the President of DCI and is a duly authorized officer who has primary responsibility for DCI's operations.

4. WHEREAS, DCI intends to acquire the Sol Lynn Property through a contract with Sharon H. Lynn and Lynda Kenar, Co-Successor Administratrices of the Estate of Sol Lynn (hereinafter

9212360

"Estate of Sol Lynn").

5. WHEREAS, DCI intends to acquire real property, located within the Site, from Gibraltar Bank, as described in Appendix A2 of this Agreement (hereinafter the "Gibraltar Bank Property").

6. WHEREAS, Settling Party recognizes and acknowledges that DCI is purchasing real property where response actions to clean up polychlorinated biphenyl (PCB) and trichloroethylene (TCE) contamination are being conducted and will be conducted in the future.

7. WHEREAS, Settling Party recognizes and acknowledges that the implementation of response actions may interfere with Settling Party's use of the Sol Lynn Property and the Gibraltar Bank Property, and that such response actions have caused to remain on the Site soils containing polychlorinated biphenyls (PCBs) and dimethyl sulfoxide (DMSO).

8. WHEREAS, EPA has no information, as of the date Settling Party signs this Agreement, that the business activities of Settling Party at the Sol Lynn Property have interfered with EPA response actions conducted at the Site.

9. WHEREAS, the primary purpose of this Agreement is to settle and resolve the future potential liability of Settling Party for the presently existing contamination at the Sol Lynn Property and the Gibraltar Bank Property.

10. WHEREAS, this Agreement is contingent upon EPA's receipt of funds from the sale of the Sol Lynn Property to DCI by Sharon H. Lynn and Lynda Kenar, Co-Successor Administratrices of the Estate

of Sol Lynn, as agreed by Sharon H. Lynn and Lynda Kenar in the Consent Decree to be filed in United States v. Sharon H. Lynn and Lynda Kenar, Co-Successor Administratrices of the Estate of Sol Lynn in Civil Action No. H 91-0955 in the United States District Court for the Southern District of Texas.

11. WHEREAS, resolution of Settling Party's potential future liability in exchange for performance of Settling Party's obligations pursuant to this Agreement is in the public interest, and provides a substantial benefit to the EPA which would otherwise not be available.

THEREFORE, EPA and Settling Party agree as follows:

II. DEFINITIONS

12. "Day" shall mean a calendar day. In computing any period of time under this Agreement, where the last day would fall on a Saturday, Sunday, or Federal holiday, the period shall run until the close of business of the next working day.

13. The "Estate of Sol Lynn" shall be the probate estate of Sol Lynn, Deceased, which is subject to the jurisdiction of Probate Court No. 2 of Dallas County (Case No. 90-2567-P2).

14. The term "Net Proceeds" shall mean the total value of all monies and other consideration received from the sale or transfer of any interest in real property, less any reasonable and necessary costs for the sale or transfer of such interest.

15. The terms "remedy" and "remedial action" shall have the same definition as set forth in section 101(24) of CERCLA, 42 U.S.C. § 9601(24).

16. The term "response" shall have the same definition as set forth in section 101(25) of CERCLA, 42 U.S.C. § 9601(25).

17. "Response Costs" shall mean all expenses, costs, and disbursements, direct and indirect, incurred or to be incurred by the United States for response actions, including investigation, oversight, removal or remedial actions, and all administrative and enforcement activities (including attorneys fees) with respect to the Site including, without limitation: (1) past costs incurred prior to entry of this Consent Decree; (2) all costs for implementing, developing, performing, overseeing or verifying any investigatory or response activities at the Site, or any requirements of this Consent Decree; and (3) any other or future such costs incurred after entry of this Consent Decree.

18. The term "Settling Party" shall mean DCI and any successors and assigns to any interest of DCI in any real property which is included in whole or in part in the Sol Lynn Property or the Gibraltar Bank Property.

19. The "Site" means the real property, and all improvements thereto, located in Houston, Texas, which is bounded on the north by the South Loop West Feeder Street, on the east by David Street, on the south by Mansard Street, and on the west by Knight Street. The term "Site" shall include the Sol Lynn Property and the Gibraltar Bank Property, and all areas to which hazardous substances released from the above-described properties have migrated or come to be located.

20. The "Gibraltar Bank Property" shall mean the real

property, and all improvements thereto, described in Appendix A2 of this Agreement.

21. The "Sol Lynn Property" shall mean the real property, approximately three-quarters (3/4) of one acre in size, and all improvements thereto, located within the boundaries of the Site (as defined in this Agreement), at 1415, 1417, and 1419 South Loop West, and which is more particularly described in Appendix A1 of this Agreement.

III. BACKGROUND

22. The Sol Lynn Property is the location of a former electrical transformer salvage and recycling company operated by Sol Lynn. Sila-King, a chemical supply and recycling company, subsequently operated at the same location.

23. In the early 1980s, EPA, State, and local inspections and sampling at the Site indicated high levels of polychlorinated biphenyls (PCB) in the soil.

24. Sampling of ground water beneath the Site indicates elevated levels of trichlorethylene (TCE) in the ground water.

25. As a result of the release or threatened release of hazardous substances at the Site, in October 1984, the Site was proposed for ranking on the National Priorities List (NPL) pursuant to section 105 of CERCLA, 42 U.S.C. § 9605. The Site was placed on the NPL, by publication in the Federal Register on March 31, 1989, 54 Fed. Reg. 13296.

26. A Remedial Investigation and Feasibility Study (RI/FS) was conducted at the Site beginning in 1987. The RI/FS divided the

Site, for purposes of remediation, into two operable units. Operable Unit 1 deals with PCB contamination in soils. Operable Unit 2 deals with TCE contamination of ground water beneath, and migrating from, the Site.

27. On March 25, 1988, EPA issued its Record of Decision in which it selected the remedy for cleanup of Operable Unit 1. This Record of Decision was amended by EPA on September 16, 1992 when it issued the Amended Phase I Record of Decision.

28. In March, 1990, EPA entered into a Consent Decree with Gulf States Utilities Company (GSU) under which GSU will conduct the remedial action for Operable Unit 1. The Consent Decree was subsequently modified on two occasions to reflect changes in the chosen remedy.

29. The Second Modified Consent Decree, which superseded the earlier Consent Decrees, was entered by the U.S. District Court for the Southern District of Texas on January 12, 1993. Under the Second Modified Consent Decree, GSU will conduct the remedial action for Operable Unit 1 which includes the excavation and off-site disposal of contaminated soil with concentrations greater than 25 parts per million PCB, demolition, decontamination, and disposal of a soil storage building on the Site, and grading of the Site in relation to the surrounding area. GSU has agreed to pay certain response costs incurred by the United States in connection with the Operable Unit 1 remedial action.

30. On September 23, 1988, EPA issued its Record of Decision in which it selected the remedy for Operable Unit 2 (Phase II

Record of Decision).

31. EPA has entered into a Cooperative Agreement with the State of Texas, through the Texas Water Commission (TWC), to conduct the remedial action for Operable Unit 2. The remedial action for Operable Unit 2 will consist of long-term pumping and treating of ground water at the Site and air-stripping of contaminants from the ground water. EPA has entered into a ten (10) year contract, beginning in November 1992, for treatment of ground water. If remediation is not complete at the end of the ten (10) year period, additional investigations and/or additional treatment may be conducted. Monitoring wells which have been placed on the Site will be used to test ground water during the remediation period.

32. Remediation of both Operable Units will require EPA and State personnel, and authorized representatives and contractors of the State and EPA, to have access to the Site at all reasonable times and to be able to move freely about the Site to conduct cleanup operations and to oversee Site remediation and operation and maintenance of the ground water pump and treatment system.

33. On May 22, 1991, EPA filed a Notice of Federal Lien, pursuant to section 107(l) of CERCLA, 42 U.S.C. § 9607(l), in the Harris County Clerk's Office (file stamp No. 034-20-0992) against the real property comprising the Sol Lynn Property.

IV. PARTIES BOUND

34. This Agreement shall apply to and be binding upon EPA and upon DCI, and its employees, agents, successors, assigns, and any

subsequent purchasers or assigns of any interest in real property which is included in whole or in part in the Sol Lynn Property or in the Gibraltar Bank Property.

35. The parties bound by this Agreement agree to undertake all actions required by the terms and conditions of this Agreement.

V. CERTIFICATIONS OF SETTLING PARTY

36. By executing this Agreement, Settling Party represents and certifies that it has not caused or contributed to any existing contamination at the Site, and further certifies that it has not contributed to a release or threat of release of hazardous substances from the Site. If the certifications by Settling Party pursuant to this paragraph are not true, or the purchases of the properties by DCI are not consummated, or if the payment required in Section VI of this Agreement is not received, this Agreement shall not be effective, and EPA will reserve all rights it may have against Settling Party.

37. By executing this Agreement, Settling Party agrees to exercise due care with respect to hazardous substances, pollutants and contaminants at the Site, and agrees not to interfere with response actions conducted by GSU or by EPA, TWC, and their authorized contractors and representatives.

VI. SALE OF THE SOL LYNN PROPERTY AND PAYMENT TO EPA

38. No later than ten (10) days after the effective date of this Agreement, DCI shall enter into a real estate contract with the Estate of Sol Lynn for the sale of the Sol Lynn Property and the establishment of an escrow account. Pursuant to the terms of

the real estate contract, DCI shall deposit ONE HUNDRED FIFTY THOUSAND AND 00/100 DOLLARS ($150,000.00) in trust with an escrow agent no later than fifteen (15) days after the effective date of this Agreement.

39. The terms of the real estate contract between DCI and the Estate of Sol Lynn, pursuant to Paragraph 38 of this Agreement, shall require an escrow agent to pay to the United States, in accordance with the payment procedures set forth in Paragraph 40 of this Agreement, one-half (1/2) of the Net Proceeds from the sale of the Sol Lynn Property, plus one-half (1/2) of all interest which has accrued on the amount deposited into the escrow account. Such payment shall be made no later than two (2) days after the escrow agent's receipt of written notification from EPA that the Consent Decree between the United States and the Estate of Sol Lynn, in Civil Action No. H 91-0955, has been entered by the U.S. District Court.

40. The payment required in Paragraph 39 of this Agreement shall be made by Electronic Funds Transfer ("EFT" or wire transfer) to the U.S. Department of Justice lockbox bank, referencing the Site Name and CERCLA Number 36 and the U.S.A.O. file number _____. Payment shall be made in accordance with instructions provided by EPA to DCI upon execution of this Agreement. Any EFTs received at the U.S. D.O.J. lockbox bank after 11:00 A.M. (Eastern Time) will be credited on the next business day. The escrow agent shall send a copy of the EFT to:

Superfund Enforcement Officer
Industrial Transformer/Sol Lynn Superfund Site

Superfund Cost Recovery Section (6H-EC)
U.S. Environmental Protection Agency, Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733

41. If the real estate contract is not finalized, this Agreement shall be null and void and any monies received by the escrow agent shall be returned to DCI.

VII. ACCESS

42. DCI shall acquire ownership of the Sol Lynn Property and the Gibraltar Bank Property on or before the date of the payment to the United States pursuant to paragraph 39 of this Agreement.

43. Upon DCI's acquisition of the Sol Lynn property, DCI agrees to grant to EPA, TWC, and their authorized contractors and representatives an irrevocable right to enter upon the Sol Lynn Property at any reasonable time for purposes of implementing and overseeing any response action conducted on the Site.

44. Upon DCI's acquisition of the Gibraltar Bank Property, DCI agrees to grant to EPA, TWC, and their authorized contractors and representatives an irrevocable right to enter upon the Gibraltar Bank Property at any reasonable time for purposes of implementing and overseeing any response action conducted on the Site.

45. This Agreement does not restrict or limit any right EPA may have to enter onto the Site pursuant to specific statutory or regulatory authority.

VIII. RESTRICTIVE COVENANT AND ACCESS EASEMENT

46. The obligations of DCI with respect to this Section shall be binding upon DCI and upon all persons who subsequently acquire

any interest in the Sol Lynn Property and/or the Gibraltar Bank Property. For each of the above Properties, DCI shall, no later than two (2) days after DCI's acquisition of such property, submit for recording, in the Harris County Clerk's Office, a photocopy of this Agreement and a signed original of the Restrictive Covenant and Access Easement, attached hereto as Appendix B of this Agreement.

47. In submitting a copy of this Agreement and the Restrictive Covenant and Access Easement for recording, DCI shall, in writing, request a file-stamped copy of each document to be returned from the County Clerk's Office. No later than two (2) days after receiving the file-stamped copy, DCI shall send a photocopy of the file-stamped Agreement and the Restrictive Covenant and Access Easement for each property to the addressees in Section XVII of this Agreement.

IX. FUTURE CONVEYANCE

48. DCI may freely alienate its real property interest, or any portion thereof, in the Sol Lynn Property and the Gibraltar Bank Property, provided that at least thirty (30) calendar days prior to the date of transfer of an interest, including any sale or lease, DCI shall notify, in writing, the addressees in Section XVII of this Agreement, of the proposed transfer and the name(s) of the proposed successor(s) in interest and assign(s) who would acquire such interest.

49. Each deed, contract, or other instrument of conveyance of any portion of, or interest in, the Sol Lynn Property or the

Gibraltar Bank Property shall contain a notice stating that the property or interest being conveyed is subject to this Agreement and to the Restrictive Covenant and Access Easement applicable to that property.

X. COVENANTS NOT TO SUE

50. In consideration of the obligations to be performed under this Agreement, and subject to the Reservation of Rights in Section XI of this Agreement, EPA covenants not to sue or to take civil or administrative enforcement action against Settling Party for any and all civil liability for injunctive relief or for reimbursement of response costs pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), with regard to any existing PCB and/or TCE contamination at the Sol Lynn Property or the Gibraltar Bank Property upon receipt of the payment required in Section VI of this Agreement. These covenants not to sue extend only to Settling Party, except as provided in Paragraph 51 of this Agreement.

51. The successors or assigns of Settling Party will receive these covenants not to sue only if such successors or assigns perform or continue to perform all of the obligations of its predecessor under this Agreement. In addition, the covenants not to sue apply to a successor or assign only to the extent of the successor's or assign's liability and will not release the successor or assign from any other liability or obligation which it may currently have or to which it may succeed. Any successor or assign of DCI which acquires any interest in the Sol Lynn Property or the Gibraltar Bank Property shall, prior to such acquisition,

execute the Successor Covenant in Appendix D of this Agreement. By executing the Successor Covenant, such successor or assign of DCI agrees that it will comply with all provisions of this Agreement including the Restrictive Covenant and Access Easement applicable to the acquired interest or property.

52. The covenant not to sue pursuant to this section is conditioned upon the complete and satisfactory performance by Settling Party and any successor of their obligations under this Agreement.

XI. RESERVATION OF RIGHTS

53. Notwithstanding the Covenant Not to Sue described in Section X above, nothing in this Agreement is intended to be, and shall not be construed as, a release or covenant not to sue for any claim or cause of action, administrative or judicial, at law or in equity, which EPA may have against Settling Party, or any successor or assign, for:

(a) Any liability as a result of DCI's failure to provide to EPA, TWC, and their authorized contractors and representatives access to property within the Site owned by DCI;

(b) Any liability as a result of DCI's failure to exercise due care with respect to hazardous substances at the Site;

(c) Any liability as a result of DCI's failure to make the payment as required by Section VI of this Agreement;

(d) Any liability as a result of DCI's creation of a new release or threat of release of hazardous substances, pollutants or contaminants at or from the Site after DCI's acquisition of any part of the Site;

(e) Any liability as a result of past or future exacerbation by DCI of the release or threat of release of hazardous substances from the Site;

(f) Any liability as a result of interference by DCI with response actions conducted at the Site;

(g) Any liability resulting from past releases of hazardous substances, pollutants or contaminants at the Site caused or contributed by DCI;

(h) Any and all criminal liability;

(i) Any liability for natural resource damages and response costs associated with natural resource damages;

(j) Any liability for response costs incurred by federal agencies other than EPA;

(k) Any liability for failure to comply with the terms of this Agreement;

(l) Any liability arising from the past, present, or future disposal by DCI of hazardous substances, pollutants or contaminants which causes a release or threat of release of such substances outside of the Site.

54. With respect to any claim or cause of action asserted by the EPA for liability associated with releases or threats of releases of hazardous substances at or from the Site, not otherwise addressed by the covenant not to sue in this Agreement, Settling Party shall bear the burden of proving that the cause of action, or any part thereof, is attributable solely to contamination which existed prior to the date of DCI's acquisition of any part of the Site.

55. Nothing in this Agreement constitutes a covenant not to sue or to take action or otherwise limits the ability of EPA to seek or obtain further relief from Settling Party and the covenants not to sue in Section X of this Agreement are null and void if information is discovered which establishes that the certifications in Section V of this Agreement were false as of the effective date of the Agreement.

56. Nothing in this Agreement is intended as a release or covenant not to sue for any claim or cause of action, administrative or judicial, civil or criminal, past or future, in law or in equity, which EPA may have against any person other than the Settling Party.

57. Nothing in this Agreement is intended to limit the right of EPA to undertake future response actions at the Site or to seek to compel parties other than Settling Party to perform or pay for response actions at the Site.

58. Nothing in this Agreement shall in any way restrict or limit the nature or scope of response actions which may be taken or be required by EPA or the State of Texas in exercising their authority under Federal or State law.

XII. COVENANTS BY SETTLING PARTY

59. Settling Party hereby covenants not to sue and agrees not to assert any claims or causes of action against the United States with respect to the Site or this Agreement, including, but not limited to, any direct or indirect claim for reimbursement from the Hazardous Substance Superfund (established pursuant to Internal Revenue Code, 26 U.S.C. § 9507) through CERCLA sections 106(b), 111, 112, 113 or any other provision of law, any claim against the United States, including any department, agency or instrumentality of the United States under CERCLA section 107 or 113 related to the Site, or any claims arising out of response activities at the Site. However, Settling Party reserves, and this Agreement is without prejudice to, actions against the United States based on negligent

actions taken directly by the United States that are brought pursuant to any statute other than CERCLA and for which the waiver of sovereign immunity is found in a statute other than CERCLA. Nothing in this Consent Decree shall be deemed to constitute preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

XIII. CONTRIBUTION PROTECTION

60. With regard to claims for contribution against Settling Party for matters addressed in this Agreement and Covenant Not to Sue, the Parties hereto agree that the Settling Party is entitled to such protection from contribution actions or claims as is provided by CERCLA Section 113(f)(2), 42 U.S.C. § 9613(f)(2).

61. Settling Party agrees that with respect to any suit or claim for contribution brought against it for matters related to this Agreement and Covenant Not to Sue it will notify, in writing, the United States within 10 days of service of the complaint on it. In addition, Settling Party shall notify the United States within 10 days of service or receipt of any Motion for Summary Judgment and within 10 days of receipt of any order from a court setting a case for trial.

XIV. NO ADMISSION OF LIABILITY

62. The parties to this Agreement agree that the Settling Party's entry into this Agreement, and the actions undertaken by Settling Party in accordance with this Agreement, do not constitute an admission of any liability by DCI.

XV. RELEASE OF NOTICE OF FEDERAL LIEN

63. Within ten (10) days after EPA receives the payment required in Section VI of this Agreement, EPA shall file a Release of Notice of Federal Lien in the Harris County Clerk's Office.

64. The Release of Notice of Federal Lien shall release the Notice of Federal Lien filed on May 22, 1991 (file stamp No. 034-20-0992) and shall not release any other lien or encumbrance which may exist upon the property comprising the Sol Lynn Property.

65. EPA shall send a photocopy of the file-stamped copy of the Release of Notice of Federal Lien to DCI.

XVI. DISCLAIMER

66. This Agreement in no way constitutes a finding by EPA as to the risks to human health or the environment which may be posed by contamination at the Site. This Agreement does not constitute a representation by EPA that the Site, or any part thereof, is fit for any particular purpose.

XVII. NOTIFICATION TO EPA

67. All notifications by Settling Party, or any successor or assign, to EPA required pursuant to this Agreement, unless otherwise indicated, shall be submitted to the following addressees:

Remedial Project Manager
Superfund Programs Branch (6H-SC)
Sol Lynn/Industrial Transformer Superfund Site
U.S. Environmental Protection Agency, Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733

Assistant Regional Counsel
Sol Lynn/Industrial Transformer Superfund Site

Office of Regional Counsel (6C-WT)
U.S. Environmental Protection Agency, Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733

XVIII. TERMINATION OF RESTRICTIVE COVENANT AND ACCESS EASEMENT

68. The Restrictive Covenant and Access Easement pursuant to Section VIII of this Agreement may be terminated only by mutual agreement of EPA and Settling Party. If Settling Party judges that all obligations and requirements imposed upon Settling Party pursuant to this Agreement have been completed, Settling Party may petition EPA for termination of the Restrictive Covenant and Access Easement.

XIX. APPENDICES

69. The following Appendices are attached to and are incorporated into this Consent Decree:

Appendix A1: Legal description of the Sol Lynn Property

Appendix A2: Legal description of the Gibraltar Bank Property

Appendix B: Restrictive Covenant and Access Easement

Appendix C: U.S. Department of Justice Concurrence

Appendix D: Successor Covenant

XX. APPROVAL OF THE U.S. ATTORNEY GENERAL

70. The Attorney General of the United States, by and through his/her designee issued approval of the settlement embodied in this Agreement. That approval is appended as Appendix C of this Agreement.

XXI. SIGNATORIES

71. The undersigned representative of DCI, and the

undersigned representatives of EPA certify that he or she is fully authorized to enter into the terms and conditions of this Agreement and Covenant Not to Sue and to execute and legally bind such party to this document.

XXII. EFFECTIVE DATE

72. The effective date of this Agreement shall be the date upon which EPA sends written notification to Settling Party that the Attorney General of the United States has approved of the settlement embodied in this Agreement and that all necessary signatures of EPA have been obtained.

SO AGREED BY DISCOUNT COMMUNICATIONS, INC.:

By: Larry Feingersh — 7-14-93
Signature — Date

Larry Feingersh
Print name

President
Title

Attested by: Rosemary C Craig — 7-14-93
Date

Title: Asst Secretary

SO AGREED BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY:

By: _____ — _____
Date

Steven A. Herman
Assistant Administrator for Enforcement
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

By: _____ — 8-11-93
Date

Joe D. Winkle
Acting Regional Administrator
U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733

STATE OF TEXAS

COUNTY OF HARRIS

On this 14th day of July, 1993, before me, JEANNE BUNNELL LEACH, a Notary Public, appeared LARRY FEINGERSH, President of DISCOUNT COMMUNICATIONS, INC., personally known to me to be the person who executed the foregoing instrument.

IN WITNESS THEREOF, I have hereunto set my hand and affixed my official seal the day and year last above written.

(seal)

JEANNE BUNNELL LEACH
NOTARY PUBLIC, STATE
OF TEXAS
My Comm. Expires 10-12-96

Jeanne Bunnell Leach
Notary Public, State of Texas

APPENDIX A1

Agreement and Covenant Not to Sue
CERCLA Docket No. 6-15-93

PROPERTY DESCRIPTION
SOL LYNN PROPERTY

The Site is located at 1415, 1417, and 1419 South Loop West in the City of Houston, Harris County, Texas, and is legally described as follows:

Lot Five (5) in Block One Hundred One (101) of KNIGHTS MAIN STREET ADDITION SECTION TWO (2), a subdivision in Harris County, Texas, according to Map or Plat thereof, recorded in Volume 572, Page 495 of the Deed Records of Harris County, Texas.

Lot No. Six (6) in Block No. One Hundred One (101) and Lot No. One (1) in Block No. One Hundred Two (102) of KNIGHTS MAIN STREET ADDITION SECTION TWO (2), a subdivision in Harris County, Texas, according to the map or plat thereof, recorded in Volume 572 Pages 495-496 of the Deed Records of Harris County, Texas; SAVE AND EXCEPT that portion off of the North part of Lot 1 (sic), Block 102, and Lot 6, Block 101, on Enoch Avenue (South Loop) conveyed to the State of Texas, in Deed recorded in Volume 4691, page 473 of the Deed Records of Harris County, Texas.

Lot 8 in Block 102, KNIGHTS MAIN STREET ADDITION SECTION #2, an Addition in Harris County, Texas, according to the map thereof recorded in Volume 592, Page 115, of the Deed Records of Harris County, Texas, together with all improvements thereon.

Lots Three (3) and Four (4), Block One Hundred One (101) of Knights Main Addition, Section Two (2), a subdivision in Harris County, Texas, according to the map or plat thereof recorded in Vol. 572, Pg. 496 of the Deed Records of Harris County, Texas.

APPENDIX A2

Agreement and Covenant Not to Sue
CERCLA Docket No. 6-15-93

PROPERTY DESCRIPTION
GIBRALTAR BANK PROPERTY

Lots Two (2) and Three (3) and Block One Hundred Two (102) of Knights Main Street Addition, Section Two (2), a subdivision in Harris County, Texas according to Map or Plat thereof, recorded in Volume 572, Pages 495-496 of the Deed Records of Harris County, Texas.

APPENDIX B

Agreement and Covenant Not to Sue
CERCLA Docket No. 6-15-93

RESTRICTIVE COVENANT AND ACCESS EASEMENT

Discount Communications, Inc. (hereinafter "Declarant") hereby submits the real property described below to the provisions of this Restrictive Covenant and Access Easement, and declares that all of the following terms, conditions, restrictions, and obligations shall be deemed to affect and encumber all of the real property described below, and shall run with the real property and shall be a burden and a benefit to Declarant, its successors and assigns, and to any and all other persons acquiring or owning any interest whatsoever in any portion of the real property described below, and any improvements thereon, and such person's grantees, successors, heirs, executors, administrators, devisees, and assigns, until the United States Environmental Protection Agency, or any successor Agency of the federal government, certifies the completion of all remedial action and operation and maintenance at the Site, as that term ("Site") is defined in the Agreement and Covenant Not to Sue.

WITNESSETH:

WHEREAS, Declarant is the owner of the following real property:

> Lot Five (5) in Block One Hundred One (101) of KNIGHTS MAIN STREET ADDITION SECTION TWO (2), a subdivision in Harris County, Texas, according to Map or Plat thereof, recorded in Volume 572, Page 495 of the Deed Records of Harris County, Texas.
>
> Lot No. Six (6) in Block No. One Hundred One (101) and Lot No. One (1) in Block No. One Hundred Two (102) of KNIGHTS MAIN STREET ADDITION SECTION TWO (2), a subdivision in Harris County, Texas, according to the map or plat thereof, recorded in Volume 572 Pages 495-496 of

the Deed Records of Harris County, Texas; SAVE AND EXCEPT that portion off of the North part of Lot 1 (sic), Block 102, and Lot 6, Block 101, on Enoch Avenue (South Loop) conveyed to the State of Texas, in Deed recorded in Volume 4691, page 473 of the Deed Records of Harris County, Texas.

Lot 8 in Block 102, KNIGHTS MAIN STREET ADDITION SECTION #2, an Addition in Harris County, Texas, according to the map thereof recorded in Volume 592, Page 115, of the Deed Records of Harris County, Texas, together with all improvements thereon.

Lots Three (3) and Four (4), Block One Hundred One (101) of Knights Main Addition, Section Two (2), a subdivision in Harris County, Texas, according to the map or plat thereof recorded in Vol. 572, Pg. 496 of the Deed Records of Harris County, Texas.

WITNESSETH:

WHEREAS, Declarant is the owner of the following real property:

Lots Two (2) and Three (3) and Block One Hundred Two (102) of Knights Main Street Addition, Section Two (2), a subdivision in Harris County, Texas according to Map or Plat thereof, recorded in Volume 572, Pages 495-496 of the Deed Records of Harris County, Texas.

WHEREAS, Declarant has entered into an Agreement and Covenant Not to Sue with EPA which concerns the above-described real property; and

WHEREAS, In order to expeditiously implement the rights and powers of the EPA to restrict the use of the above-described real property,

NOW THEREFORE, Declarant hereby declares as follows, THAT UNTIL THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY HAS CERTIFIED THE COMPLETION OF ALL REMEDIAL ACTION AND OPERATION AND MAINTENANCE ACTIVITIES UPON THE SITE, WHEN SUCH TERMS, CONDITIONS, RESTRICTIONS, AND OBLIGATIONS CREATED HEREIN SHALL TERMINATE:

1. Declarant grants an easement which reserves to EPA, the State of Texas, and their authorized contractors and representatives such access as may be necessary to implement and oversee any response action pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601 et seq., and to conduct any operation and maintenance of any remedial action on the above-described real property.

2. Declarant shall not install or maintain, and shall prevent the installation and maintenance of, any wells or other means to extract ground water for any purpose by any person other than EPA, the State of Texas, and their authorized contractors and representatives.

3. Declarant shall not use the above-described real property, or any portion thereof, for residential purposes.

4. Declarant shall provide in any deed, title, or other

instrument of conveyance of any interest in the above-described real property, a notice stating that such real property is subject to this Restrictive Covenant and Access Easement.

5. Declarant shall give, at least thirty (30) days prior to the conveyance of any interest in the above-described real property, written notice to the grantee of such interest and shall give written notice to the United States Environmental Protection Agency, Region 6, of the proposed conveyance, including the name and address of the grantee, and the date on which notice of this Restrictive Covenant and Access Easement was given to the grantee.

THIS RESTRICTIVE COVENANT AND ACCESS EASEMENT shall continue in force until EPA certifies the completion of all remedial action and operation and maintenance at the Site.

IN WITNESS WHEREOF, Discount Communications, Inc. has caused this instrument to be executed this _____ day of _____, 1993.

_____

_____
Title

State of _____

County of _____

On this _____ day of _____, 1993, before me, _____, a Notary Public, appeared _____, personally known to me to be the person who executed the foregoing instrument.

IN WITNESS THEREOF, I have hereunto set my hand and affixed my official seal the day and year last above written.

_____
Notary Public

My commission expires:_____

APPENDIX C

Agreement and Covenant Not to Sue
CERCLA Docket No. 6-15-93

DEPARTMENT OF JUSTICE CONCURRENCE

The United States Department of Justice concurs in the proposed Agreement and Covenant Not to Sue entered into between Discount Communications, Inc. and the United States Environmental Protection Agency (EPA). The United States Department of Justice agrees that EPA has authority to enter into this agreement. This concurrence will be attached to the Agreement and Covenant Not to Sue as Appendix C.

Date: 9/10/93

Signed: _____

Myles E. Flint
Acting Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611, Ben Franklin Station
Washington, D.C. 20044

APPENDIX D

Agreement and Covenant Not to Sue
CERCLA Docket No. 6-15-93

SUCCESSOR COVENANT

_____ (hereinafter "Successor") has acquired an interest in real property which is subject to the terms of the Agreement and Covenant Not to Sue (CERCLA Docket No. 6-15-93) ("Agreement") entered into by Discount Communications, Inc., and the United States Environmental Protection Agency ("EPA").

Successor acknowledges and declares that Successor is aware of the terms of the Agreement and Successor acknowledges that such real property is subject to the Restrictive Covenant and Access Easement ("Restrictive Covenant") pursuant to the Agreement. Successor understands and acknowledges that the Agreement and the Restrictive Covenant provide both a burden and a benefit to Successor and that certain activities upon the real property acquired by Successor are prohibited.

Successor hereby agrees that it shall comply with all terms of the Agreement and with all the terms of the Restrictive Covenant.

Signed: _____

_____
Company Name

_____
Title

Attested to by:_____ Date:_____

Notary in the State of _____.